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OBSTETRIC SCIENCE AND ART IN THE SERVICE OF THE NATION*

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At the present time no medical problem in the United States is without its bearing on the winning of the war and the maintenance of the strength of our population. It is pertinent to ask, What has modern obstetric science and art to give to the nation, and how may it best be given and most efficiently used?

Among the recent advances in obstetrics there are measures which may be rightly called medical and others which are surgical.

MEDICAL ADVANCES IN OBSTETRICS

In the first, agencies to relieve pain during parturition and to prevent suffering and shock are easily of the first importance. The combination of the treatment by suggestion, discipline, morphin and scopolamin, known as the twilight sleep method, has largely collapsed in its gaseous elements, but we have a true knowledge gained by experience of its real value. Those who have used it most intelligently say that when a patient is in a hospital under the constant attention of an experienced physician and good nurses, during the first stage of labor and the early part of the second stage, morphin and scopolamin may be used to advantage. In highly nervous patients it is impossible to tell in advance whether this combination of drugs will excite or soothe the patient; there is some danger of producing asphyxia in the child, labor is prolonged, and the use of forceps rendered more often necessary. This method has elements of value within a narrow scope; we recognize in it a tried and familiar friend in morphin, which practitioners have used during the first stage of labor for many years, with success.

Nitrous oxid and oxygen are strongly recommended and have enthusiastic advocates, but observation and experience show that their use requires skill and experience, that some patients are partially asphyxiated and greatly irritated by these gases, and that they are not suitable for surgical procedures or prolonged anesthesia. They are of especial value for brief manipulations, such as the introduction of bougies or the inducing of labor, the use of dilating bags or the introduction or removal of gauze packing.

But these more recent attempts to mitigate the suffering of parturition have done much good because they have directed the attention of physicians to this point and have resulted in a classification of our knowledge and a comparison of methods. We know that during the first stages of labor, morphin or codein with atropin is exceedingly useful in promoting dilatation with lessened suffering. When nervousness only is the complication, bromids are sometimes of value. During the actual second stage, nitrous oxid and oxygen are used successfully if properly given, and ether is exceedingly valuable when quickly inhaled in small quantities. By such use of ether the mother is rendered unconscious at the moment when the child is born, waking quickly and with no bad results. No woman should pass through labor without intelligent and careful effort to reduce her suffering to the lowest possible degree. In this regard the women in the United States have for years had better attention than is usually given to European women.

Pituitary solution was hailed as a substitute for forceps, the great time saver for the busy practitioner and a great remedy for delay in labor. Its unwise use has caused rupture of the uterus, severe lacerations in the mother and death of the fetus through pressure. It has a distinct and limited field of use. When the mother and child are proportionate in size and the head is low down in the pelvic cavity or on the pelvic floor, the cervix completely dilated and all that is needed is a few uterine contractions, then, and only then, should pituitary solution be given during labor. To cause the empty uterus to contract quickly, thus checking hemorrhage, pituitary solution is especially valuable: it may be used at cesarean section for that purpose or for the immediate stoppage of sudden and threatening bleeding. For hemorrhage it should always be followed by strychnin and ergot, as its effects are brief. In paralysis of the intestine following abdominal section or complicating the puerperal period, pituitary solution is often of value.

The treatment of puerperal septic infection by vaccines and serums is in line with modern advances in the treatment of other diseases. So far there has been no proved ground for the belief that vaccines and serums are of special value in combating puerperal septic infections. Antistreptococcic serum, to be effective, must be prepared for each case and given in doses so large that it may seriously depress the patient; vaccines have yet to prove their reliable effect. What is, however, of decided value and what can do no harm, is sterile horse serum, which in the toxemia of pregnancy and the puerperal state, may be given in doses of 20 c.c., with excellent result. This substance increases the mother's resisting power without producing depression.

The toxemia of pregnancy in its early stage of pernicious nausea and vomiting or in its later form of

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eclampsia, with or without convulsions, remains an undiscovered country and an unconquered field for advance in obstetric science. It has been clearly shown that the indiscriminate delivery of eclamptic women by vaginal or abdominal section is worse than useless. The emptying of the uterus by no means ends the danger. That form of treatment which secures rapid and thorough elimination with the least shock is best. To be avoided are depressants, as narcotics in large doses. In rare cases prompt delivery by section is indicated. To put the matter more in detail, it is my habit in these cases to bleed, followed by intravenous saline transfusion; to irrigate thoroughly the stomach, leaving within it calomel and soda; to irrigate thoroughly and copiously the intestine, leaving salt solution for absorption; to cleanse the patient's skin and place her between blankets; to use no anesthetic; to give abundance of fresh air and if available, oxygen by inhalation; not to interfere with the uterus unless labor begins, and then if it delays, to empty the uterus in the most prompt and least disturbing manner.

Cesarean section, vaginal or abdominal, is most successful in fulminant toxemia before convulsions begin. When treatment by elimination has failed to improve the patient's condition, prompt delivery may turn the scale.

Convulsions are of minor importance; a woman may die without having a convulsion and another recover who has had a hundred. The prognosis of severe toxemia, whether in early or in late pregnancy, is absolutely uncertain. It resembles strongly the prognosis in pneumonia. In both diseases, death comes from toxemia, and one cannot accurately recognize or isolate the toxins.

ADVANCES IN OBSTETRIC SURGERY

Obsetric medicine, then, has gained in its ability to lessen pain and shock, to shorten tedious labor, to prevent sudden hemorrhage and rescue the mother from the dangers of toxemia; but obstetric surgery has shown more decided advances. Contracted pelvis is one of the least dangerous of obstetric complications when the patient is in good hands. A thorough knowledge of obstetrics will prevent postpartum hemorrhage in a great majority of cases. The immediate repair of lacerations of the cervix, anterior and posterior segments of the pelvic floor and perineum gives the patient a complete anatomic recovery from labor. The prompt performance of abdominal cesarean section will save the lives of mother and child in many cases of placenta praevia. Abdominal and pelvic tumors complicating pregnancy and labor are successfully removed; ectopic gestation and rupture of the uterus call for prompt and efficient obstetric surgery. The high application of forceps, prophylactic version in contracted pelvis, craniotomy on the living child, and violent methods of dilation and delivery in prolapse of the cord and shoulder presentation have been abandoned. In no branch of surgery has greater advance been made than in obstetric surgery.

And yet, when a general survey is made of the field of obstetric practice, a very striking fact becomes apparent. Parturition is today to the women of the United States only less dangerous than cancer and tuberculosis, and this extraordinary condition depends on the prevalence of puerperal septic infection. Among the civilized nations of the earth, the United States has an unenviable position in the occurrence of puerperal septic infection. Time need not be lost in stating statistics, but these facts are abundantly proved. What is their explanation? Unquestionably the best American obstetrics is the best in the world. In other words, when an American woman has the benefit of the best special practice in obstetrics during pregnancy and labor, she receives more careful, thorough and painstaking care than in any other country. Those who have watched foreign clinics and are familiar with the literature of these clinics have observed this fact.

The worst American obstetrics is probably the worst in the world, and the explanation of this condition lies in the fact that such practice is done by ignorant and often unscrupulous and careless physicians. In Europe the trained midwife is far safer than in this country the bad American doctor. We in America have no use for the midwife and do not desire a perpetuation of her species; we believe that the profession of this country should do its obstetric practice and do it well; but unquestionably a thoroughly trained European midwife is far more efficient and safe than the worst type of American doctor. What suggestion can be made to remedy this state of affairs?

American surgery has reached its present world preeminence through the native skill, ingenuity and originality of the surgeons of the United States. They have been greatly aided by the multiplication of hospitals and by securing from the community in which they are, abundant opportunity for surgical practice and research. Our people have become educated to demand the very highest grade of surgical skill; conditions calling for surgical treatment are well understood by the laity; people are familiar with hospitals and their advantages, and a surgical operation is neither uncommon nor fearful.

If we apply to obstetrics some of the same lines of development, we shall find that the multiplication of maternity hospitals will be of the greatest possible service to our people and to our profession. To these hospitals should be taken primiparous women and all others having complications. If this cannot be done, then the public should demand that the essentials of hospital care be given in the home of the patient; in other words, that in her home she has special obstetric skill, trained obstetric nursing, skilled anesthesia, and whatever apparatus or instruments are necessary for a competent surgical and aseptic management of her case. If the poor can be properly treated in the hospital, if those that are well-to-do can be properly accommodated in hospitals, and if those that are able to demand and afford competent obstetric care can secure it in their homes there will be a definite and great improvement. This will result in the better education of the profession in obstetrics, the better education of the laity, and improved training for nurses as well. The wear and tear of human life may be considerably prevented by such measures. Good roads and motor vehicles and a sufficient number of maternity hospitals will make it possible for the prompt transfer of complicated cases to receive proper attention.

Among the most interesting problems that engage the attention of the modern obstetrician is infection by the *Bacillus coli-communis*, complicating pregnancy and the puerperal state. This frequently manifests itself first in the appendix and with almost equal frequency in the gallbladder. During pregnancy the appendix should be removed as soon as it gives evi-

dence of disease; and the earlier in pregnancy this is done, the better. A gallbladder that is a constant source of suffering and danger should be drained or extirpated as early as possible in pregnancy. The obstetric surgeon is the best man to do this, because experience and observation will help him to detect signs of danger that others may pass unnoticed. A third form of this infection is that which attacks the pelvis of the kidney. Here in pronounced cases incision and drainage of the kidney are followed by the recovery of the patient without the interruption of pregnancy. This subject presents a most interesting and satisfactory field for further study by the obstetrician.

IMPORTANCE OF A CORRECT DIAGNOSIS

When, however, this subject is under discussion, the general practitioner asks where he comes in. He has been told that obstetrics is his specialty; he has long soothed his conscience and the minds of his patients by describing labor as a physiologic process, which therefore requires little or no supervision. This is a half truth more dangerous than a lie; labor is a physiologic process in the physiologic individual, but never in the pathologic person. How many sound, healthy women do we see in practice? How many sound, healthy men are married to these women? There is nothing so perfect as Nature's methods in pregnancy, labor and the puerperal state in a sound woman who is anatomically and physiologically perfect; but of such I have seen very few. There is for the general practitioner one of the most important, interesting and lucrative specialties in medicine. It is that of diagnosis. If people are not very sick and he can find it out, they need very little treatment and will recover. If they are very ill, they frequently require in the surgical way attention that he cannot give; but he is the one who first sees the patient. On his diagnosis may depend the life of the individual. A correct diagnosis promptly made calls for the prompt performance of the operation which is successful; a failure in diagnosis and delay lose the patient's life. Nothing is better appreciated by the laity than diagnostic ability on the part of their physician, and the general practitioner who is skilled in diagnosis becomes the honored and trusted adviser of the family. He may not treat its members for many of their disorders, but his verdict for the necessity of treatment is received without question. In obstetrics, diagnosis is of paramount importance; we are accustomed to tell our senior medical students at the Jefferson Medical College that we hope that a kind Providence will prevent many of them from performing major obstetric operations. But we expect and demand that all of them shall learn obstetric diagnosis, and that they shall learn to know when the head of the child has entered the pelvis and when it remains at or above the pelvic brim. To recognize the normal and equally to recognize the abnormal is no small achievement in any branch of medicine. The man with a large general practice cannot do much obstetric work and do it well without injuring his general medical practice; and many general practitioners do obstetrics to keep the medical practice of the family, a most unwise arrangement for physician and patient. The general practitioner may be tempted to yield to the pleas of his patient to undertake their obstetric care when he realizes that he has neither the time nor ability nor inclination to do the work well.

There will be no essential diminution in the mortality and morbidity of puerperal septic infection until complicated cases of obstetrics are considered as important, as dangerous and as imperative as appendicitis, infection of the gall bladder, or other acute and serious abdominal conditions. Then, and only then, will the general practitioner abstain from fruitless efforts to deliver, and a competent obstetrician will be summoned at the very first sign of danger during labor.

The maternity hospital will afford skilled attention, aseptic care to a large portion of the community, well-to-do and poor; and when our people are educated to the importance of the complicated confinement and the necessity for securing skilled attention for these cases, there will be a decided improvement.

RÔLE OF OBSTETRICS AFTER THE WAR

The present war has drawn attention to the importance of obstetric science and art. The French have gone very thoroughly into the question of what can be done to conserve the French nation. In this country the necessity of prenatal care is being manifested, and the enormous wastage of human life is drawing attention to the necessity for saving. Hitherto the value of a human life has been rated at its wage-earning capacity; hence the sentimental verdict of a jury which, to save the feelings of the parents, awarded damages of 39 cents for the life of a child run over and killed by a car.

When the present conflict of arms ceases there will follow a second struggle no less earnest, no less determined, no less important, no less vital; it will be a struggle among the nations of the earth for supremacy in commerce, manufacture, science and all essentials in the life of a great nation. That people which is strongest and most sound physically, mentally and morally will do best and win most; hence the United States needs a strong and most vigorous population for future developments.

There is another and deeper significance to this question: Death and destruction have been spread abroad throughout the world; many households have been permanently saddened. One recalls the famous utterance of John Bright in the House of Commons, "The Angel of Death is abroad among us, one can almost hear the beating of his wings." Casualty lists will grow longer in these United States, and there will be more gold stars before this war is over.

But the child in the world has always been the symbol of hope. Many a sorrow has been lessened by the love of children since the time when in the temple a Child was placed in the midst of the people. And so the children of our country may well become the silver lining to the present cloud.

250 South Twenty-First Street.

The Victory Over Rabies.—During the year 1916, according to a report recently issued, 1,008 persons from the district of Lyons received the antirabic treatment at the bacteriologic institute in that city. (Rochaix, A.: Le traitment antirabique dans la region Lyonnaise [1916], *Jour. de physiol.*, 1918, **17**, 692.) A single death in this list places the mortality at 0.099 per cent. Since 1900 more than 9,000 persons have received antirabic inoculations at Lyons alone, with a total of nine deaths, or 0.09 per cent. The story has become an old one; but it will long bear repetition as an eloquent testimony of the blessing of intelligent scientific research.

OTOLARYNGOLOGY IN THE FIRST YEAR OF THE WAR

AN INFORMAL REPORT *

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The subjects dealt with in this informal paper are: the medical problems of the base hospitals at the cantonments, and some gossip about the personnel at these hospitals; the present and future needs of otolaryngology as to personnel and finally a few comments on the character of the medical work in the Army, stating why I believe it a grown man's work and not, as it has been dubbed by a few of the present stay-at-homes, work to be done by boys.

My duty up to the present time has been largely in recruiting medical officers for otolaryngology. This naturally has aroused deep feeling, and the closing paragraphs, I am conscious, are at least reminiscent of this feeling.

THE MEDICAL PROBLEMS OF THE CANTONMENTS

The cantonments, as is well known, are small cities with a population of from 20,000 to 40,000. Although they were built in a few months, they have all the appointments of cities of years of growth, from churches to jails, and from libraries and theaters to fire engine houses. They are cities of youth; poverty and old age are never seen. Except for the nursing staff, women play but a minor part in them. In the normal cycle of a man's life, death alone is present.

At these cantonments there are sixteen base hospitals for the National Army and fifteen for the National Guard. Besides these there are scattered over the country general hospitals, post hospitals and special hospitals. One of the special hospitals is being fitted out as a hospital for head surgery. Reconstruction hospitals and hospitals for reeducation are soon to come. The number of beds in the cantonment base hospitals carries between 1,000 and 2,000, the beds in the general and post hospitals from 150 to 500. One special hospital for tuberculosis has 1,000 beds, and the hospital for head surgery has a maximum capacity of 500. Up to the present time the total number of beds planned for in this country is more than 70,000. I am not at liberty to give even approximate figures, such as the ones just given, for the hospitals contemplated and actually built abroad, but the American public can rest assured that there will be an adequate number.

The death rate is of course low, for the soldier citizens of these cantonments were chosen as physically fit before they took up residence there. The sick rate also should be low, and is low; but a curious fact, well known to all experienced medical men in the Army, soon became evident — namely, that the assembling of these apparently well young men was at once followed by epidemics of disease. The infectious diseases of childhood at once appeared and took a very virulent course. Pneumonia, the friend of the old, became the deadly enemy of youth. Cerebrospinal meningitis, which is relatively rare in civil life, became almost common.

An apparently well man is often a carrier of bacteria which he gives to his fellows. Men who have long lived together, however, seem to acquire an immunity to each other's bacteria; but take men who are strangers and assemble them in large numbers, as they are today assembled in the cantonments, and infectious diseases at once appear in spite of the healthy mode of life. Infections borne by food and drink — for example, typhoid fever, have been practically stamped out. Breath-borne infections, the bacteria of which live in some part of the respiratory tract, preferably the nose and throat, are yet to be conquered.

There are no vaccines for most of these diseases. The fundamental point in dealing with them, therefore, is to prevent them by avoiding overcrowding and by providing adequate ventilation. Recurring epidemics of cerebrospinal meningitis which took place last year at the barracks of one of the most celebrated regiments in England were controlled by such measures. The sleeping huts, which previously contained thirty beds, had ten beds taken out so that the minimum distance between the beds was 2½ feet. In addition, half of the windows of each hut were opened at the top on a slant and nailed in this position and untouched regardless of the weather.

As the men come to the camps well, the problem is to find at once the soldiers who are carriers of disease and isolate them before they can infect their mates. This was accomplished in a dramatic fashion at one cantonment recently by having twenty-four teams of medical men meet the incoming troop trains and take cultures from the nose and throat of each recruit. Those who were found to be carriers were at once isolated and treated. Work of this kind means that the bacteriologists in this war are an overworked set of men.

The problem of the carrier is the acute medical problem of the cantonments. It is becoming evident that the nose and throat are the abode of choice of the streptococcus and probably of the organisms responsible for many of the infectious diseases. The prophylaxis of infections of the respiratory organs is a most pressing problem in this country and abroad. Striking results in the control of infectious diseases have been obtained in at least one cantonment by the use of gauze masks, and in measles the use of the gauze mask has been made compulsory. Only the surface of this problem has been scratched. Never before has such an opportunity been offered to solve it. If it can be solved it will be one of the great medical achievements of the war. The poisonous gas of the enemy can be seen. We take the elaborate masks which are used by the soldiers to protect themselves as a matter of course. The germ-laden breath of the soldier cannot be seen, but it is even more deadly than the gas. It would cause a smile if every soldier on a transport was required to wear a gauze mask when below or between decks, or if a less novel measure was ordered, namely, that every soldier should carry a piece of gauze and be required to cough into it. Had either of these measures been a routine procedure on the transports last winter, my feeling is that instead of the men landing in France ill with acute or chronic pharyngitis, acute or chronic tonsillitis or acute or subacute bronchitis, which was the condition of things all through last winter, the percentage of such diseases would have been markedly reduced. I feel strongly on this point, and I am certain that I am not making a mountain out of a mole hill.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

In addition to the problem of the carrier at the base hospitals, there have come up for solution the control and prevention of venereal disease, the treatment of infectious diseases and of diseases of the respiratory tract, and the treatment of the surgical complications of these diseases, such as tonsillitis, mastoiditis and empyema. The otolaryngologist, the general medical men, and the bacteriologists have been by far the busiest medical officers. Waves of infection have passed over some of the cantonments, and the streptococcus has had a field day.

Only supposedly well men are chosen for the Army because its sole purpose is to fight. The chief purpose of the Medical Corps, therefore, is to keep the soldier well. Unfortunately, it is not its sole purpose because well men get sick, and fighting men must be injured. Naturally, the most dramatic part of the medical officer's work in the Army is caring for the wounded, the most important part, however, is keeping the fighting men well. Preventive medicine, therefore, is the medical problem of the Army *par excellence*. Those who have the vision to engage in the solution of its problems have under their control in the Army an unparalleled human laboratory and the opportunity of a century. I feel that medical men do not as yet realize this.

If practice makes perfect, the otolaryngologists in the Army today should be experts in opening peritonsillar abscesses, in resecting the septum, in tonsillectomy and in mastoidectomy. They can never hope, however, to catch up with the number of tonsils that are acting as foci of infection and thermostats for streptococci. The dentists can never hope to clean up all the teeth that are foci of infection, and the surgeons, operating as they do in some of the cantonments in from ten to twenty cases of hernia a day, can never see the end of their task. It is my belief that the soldiers who are to compose the standing army which is to maintain peace when it finally comes will never take their place in the ranks unless they have normal noses and throats, or have them made normal by operation.

OPERATIONS PERFORMED IN EAR, NOSE, AND THROAT DEPARTMENT, HEAD SECTION, SURGICAL DIVISION, BASE HOSPITAL, CAMP SHERMAN, OHIO. IN APRIL, 1918

Name of Operation	Disease or Injury	Number of Cases*	Anesthetic					
			Cocain	C. M. P.	Ether	Procain	Chloroform	None
Incision of external canal	External otitis	1	..	1				
Scarification of edematous epiglottis	Acute edema of larynx	1	1					
Removal of sphenoid anterior wall	Sphenoiditis	1	1					
Enlargement of mastoid wound	Secondary operation, mastoiditis	4	..	..	2	1	..	1
Removal of polypi	Nasal polypi	3	3					
Paracentesis	Otitis media, acute	48	3	29	..	..	..	16
Curretement of mastoid wound	Granulations	2	1	1				
Simple mastoidectomy	Mastoiditis (acute, purulent)	13	..	..	7	3	3	
Radical mastoidectomy	Mastoiditis (chronic, purulent)	4	..	..	4			
Brain abscess	Brain abscess, temporosphenoidal	1	..	..	1			
Removal of distal portion of uvula	Elongated uvula	1	..	..	..	..	..	1
Tonsillectomy and adenoidectomy	Hypertrophied tonsils; adenoids	81	81					
Opening abscess, nose, left and right	Abscess of nose	1	..	..	..	..	..	1
Permanent opening, maxillary antrum (nasal)	Chronic empyema	5	5					
Antrum puncture and washing	Acute sinusitis	25	25					
Opening ethmoid cells	Chronic empyema	2	2					
Removal of septal spur	Septal spur	1	1					
Secondary mastoid	Resecting temporal abscess	2	2					
Incision and drainage	Peritonsillar abscess	46	13	..	..	..	..	23
	Abscess of neck	3	..	..	2	..	1	
	Furunculosis, ear	1	..	..	..	..	..	1
Partial removal of turbinate	Hypertrophied middle turbinate, left, and pur. inf. sphenoid, left	1	1					
	Hyp. inferior turb.	1	1					
Total		248	140	31	16	4	4	53

* No operation has been other than successful.

I am much concerned at present about the scientific results of this war in the medical line. Naturally, of course, I am interested first and chiefly in my own. My efforts must be largely confined to reminding the men in the hospitals that a great opportunity lies at their hand, and urging them to grasp it. In a great measure it is a matter of keeping adequate records. One hesitates to add more paper work than is already necessary in the Army. The initiative in this matter lies with the commanding officers of the base hospitals and the chiefs of the medical divisions. By means of the Army records, men can be traced for years to come. What better chance on a large scale has the medical profession ever had of settling the results of certain operative procedures—for example, tonsillectomy in chronic affections of the heart or of the joints—than is before it now? Practically every medical man serving in the Army wants to go abroad. I have been in France twice, but I can assure you that it is a great question in my mind whether there is not a fuller scientific opportunity in this country.

THE EQUIPMENT AT CANTONMENT BASE HOSPITALS: PERSONAL NOTES

The equipment at the cantonment hospitals is nearing completion. At the beginning of the war it was found that 80 per cent. of the surgical instruments were of German make. The instrument firms of this country were at once lined up and asked for maximum output. For a time the men who were first at the hospitals had but little to work with except the instruments which they brought with them or had sent from their offices. Now it is only a question of asking for reasonable things and knowing how to ask for them and to have a vigorous commanding officer back up the request and repeat it if necessary, in order to get all essential instruments. Naturally the whim of every operator for special instruments cannot be granted. It is still good policy, however, to carry one's pet instruments. Then one operates at ease from the start. If the instruments wear out, this can be called part of one's contribution to the cause in place of buying more Liberty Bonds.

Speaking of being first on the ground reminds me that in the beginning days some of the men did not see why they were required to be on the ground so early, why they were not left at home until things were further along. They were sent because their

experience was needed to start things properly. In banks, clerks are not made directors. Of course in many cases the men first on the ground were uncomfortable. In the beginning some murmured a bit; now they brag of it. I have yet to talk with one of the pioneers who would have missed these beginning days. In many cases they made the hospital what it is at present even, like Day, taking part in the carpenter work. Where the men realized their job they saw to it that the head building was not pushed off the map, that it was not used for extra barracks, that it was well placed, that the original plan was even improved on. Take Holmes, for instance; he was put in charge of all the building by the commanding officer, and the result is no surprise to those that know him. The rest of the hospital had steam for its operating room. As a matter of course, Holmes soon had it for his building. He got not only steam but everything else that the Army allowed, and I suspect some things that were not allowed. In fact, he has one of the show places among the cantonment hospitals. He is an early bird if there ever was one, and always collects a large basket of worms wherever he goes. Pierce is happy at Grant now that he can keep his shoes and his clothes clean. Eagleton, at Dix, is still in a delirium of enthusiasm. Knowles has a fine place at Devens, and Skillern has developed a taste for administrative work and has aspirations to become a commanding officer. He also is much interested in his band. He has promised to embarrass me by meeting me with it when I next go there. Harris has gone to Oglethorpe to take charge of the teaching of otolaryngology. His worries have begun and mine have finished. Berens, Greene, Emerson and Fetterolf are just coming into the service. Wherever they go, the Surgeon-General's Office knows that things will run right. Levy got as far away as he could and is at Camp Lewis, American Lake, Washington. Wherever men of this stamp are placed there will be no more rumors of substandard work like Wild's incision for mastoiditis, and no suspicion of overoperating.

Haskins went early to West Point and is now professor of military hygiene. Friedberg is at Doniphan, and one of the men working under him says that being in the clinic there is better than any postgraduate course abroad.

During the year and since the entrance of this country into the war, Ingals has died. He took great pride in acting for the Surgeon-General's Office as state adviser, looking up the standing of applicants and furnishing the division of otolaryngology with their rating.

His figure comes back to me now as he stood last year by the dinner table after the banquet of the American Laryngological Society. He spoke about the war and said quietly but firmly, as was his custom, how he regretted that he could not take a more active part. He did his part, however, to the limit of his strength after the habit of his life. He suffered greatly, but lack of patriotism in a friend or acquaintance hurt him more than the pain of one of the cruelest diseases.

THE PROBLEMS OF THE SURGEON-GENERAL'S OFFICE

Naturally there have been many worrying problems for the Surgeon-General's Office to pass on. Of these, otolaryngology has had its share with the other departments. The first was the problem of consultants. Three or four consultants were appointed, but the plan from the start worked poorly and the medical officers who held such positions had to be given the choice of taking full time duty or going on the inactive list. Part time service is considered by the man who is giving full time as an unjust discrimination against him. He holds that all men have an equal right to it, and they have. Not only does it carry an unjust discrimination, but it destroys military uniformity and control. These, of course, are simply other names for discipline, and discipline is the backbone of the military machine.

The commanding office of an army hospital naturally has pride in having a staff of medical men who can cope with all the cases that come to his hospital, however difficult. If he is not so fortunate in his personnel or if unusual cases occur, he is at liberty to call in the most available civilian physicians. This has been necessary in at least one hospital and may be necessary again, unless more of the experienced otolaryngolgists of the country enter the service. There will be, of course, some men who cannot enter the service on account of physical disability, age, or some other sufficient and good reason. Let these men, if they want to be of use, make themselves known as standing ready to help as civilians; but they should be careful not to embarrass the government by trying to be both in uniform and out of it.

Service as contract surgeon has not been used in otolaryngology, although he has been employed in some of the other departments. Pressure is being continually brought to have the government use the civilian hospitals as a part of the war machinery. If I should give my own opinion in this matter, it would be that if the war is to continue three or four years more I can see how this may become necessary. At present, however, it brings up the old question of divided control and part time service. The Surgeon-General's Office, therefore, does not favor it.

The problem of the medical student has met a happier solution. Procuring a medical education is considered by Washington as preparation for the Medical Corps of the Army, and the medical student graduates by law into that corps. Those who are serving internships in hospitals have been allowed a year for such services. Naturally, however, many of the more ambitious and the most patriotic among our young men prefer to enter the Army at once and let the Army experience take the place of the internship.

As I look at it, it is axiomatic in a war of the magnitude of the present one that our hospitals are to be short handed, and that the medical schools must run on reduced personnel. Elaboration of courses must be eliminated for the time being and the schools come down to the three R's of medicine. Both hospitals and medical schools, however, can help themselves by doing away with the age limit and bringing back into service the men who have been retired. There is at present a committee in the Surgeon-General's Office which has this most important matter of teaching in the medical schools in charge for adjustment. There is every disposition to look on both sides of the question—England's mistake is well known. The Surgeon-General's Office has been fully reminded of it.

THE NEED FOR MEDICAL OFFICERS

I am continually asked if there is still need for medical men in the service. Sixteen thousand are now serving, but an imperative call has gone out for 5,000

more. In the general branches of the medical service, physicians of large hospital experience are badly needed. From all the cantonments the cry comes, Send us experienced men. Otolaryngology is better off than general medicine and surgery. However, when the base hospitals begin to go overseas in numbers there will not be enough experienced otolaryngologists to take their places. To make the department of otolaryngology what it ought to be, there should be on file, ready for instant use, the names of 200 otolaryngologists of ripe hospital experience. These men should be ready to take their physical examinations and send in their application papers on telegraphic notice. At present the available list is less than fifty. As things stand now, if your name was on such a list you might be used in six weeks or six months. However, by standing ready to apply for a commission, you have put yourself at the disposal of the government and have fulfilled your duty, at least as I see it.

If you take the combined membership of the American Otological Society, the American Laryngological Society, and the American Laryngological, Rhinological and Otological Association and omit the duplicate names and compute the percentage of the members who are in the service, it is found to be about 22 per cent. There are five lieutenant-colonels—Kopetsky and Imperatori in the field ambulance, Haskin, professor of military hygiene at West Point, and Richardson and Mosher in the Surgeon-General's Office. There are forty-one majors, twenty-six captains and eight lieutenants. The records also show that there are in active service 210 otolaryngologists and 232 ophthalmologists. Unfortunately, I do not have the figures for the special sections of the American Medical Association. Owing to the large size of these sections, I should imagine that the percentage would be somewhat less.

RETENTION IN A SPECIALTY

At the beginning of the war, the Surgeon-General, with his large grasp of affairs, made the statement that specialists would be used in their specialty as far as the exigencies of the military service permitted. No absolute promise could be made, and none was made. Naturally some men have tried to kill the goose that laid the golden egg by considering this statement a promise. This attitude has been especially true of the men just entering the specialty. No military organization could stand for a minute if so constructed. Full command is essential in order to meet changed conditions and emergencies. Up to lately the great majority of the specialists who came into the service have been used in their specialty. A few that have been found incompetent have been transferred to other lines of the medical service. I am aware also that a few men have escaped retention in their specialty, and these failures, I am also aware, will be talked about and made the most of to the end of the chapter. The fact remains, however, that never before in any war have the medical officers been assigned in accordance with their special training as they have in this war; and this is all due to the recognition of modern medicine by the present Surgeon-General.

Within the last month the shortage of medical officers has become so acute, the needs of the field service, without which the Army from the medical standpoint could not exist a day, have become so pressing that many of the medical men within the draft age, specially trained or not, have been released to field service. This, of course, is essentially a young man's job and one that appeals to the right kind of young men. This emergency has made it difficult now to retain in his specialty any man under 40. How long this shortage of men in the field service will last depends in a great measure on how the medical men of the country respond to the recent appeal. It was this scarcity of medical men that made the last call of the Council of National Defense necessary. War has always been an affair of young men, inconceivably sad, of course, but, in a just cause, most glorious. This war, from a medical standpoint, has been an affair of older men.

It goes without saying that not all physicians are equally well trained; that not all have had the same hospital advantages. As not all the physicians entered the service at the start and at the same time, it follows that those who came in first will rank, for a time at least, those who came in last. It cannot be made fair any other way. The men who gave up a year ago—and what they gave up in many cases was all that they had—are not to be lightly pushed aside by those who took a year to arrange, bargain and decide. There is no game in civil life in which such a thing would be called fair. Why should it be asked for in entering the Medical Corps of the Army?

There are not enough men of operating experience to make the medical service in otolaryngology what it should be. Some of the best men I know are not in the service—best in one sense. These men are beginning to come in. In the year that has elapsed they have been able to keep their homes open and be with their families; yet in spite of having delayed, and in spite of having enjoyed these advantages, some of them ask on entering the service that they supplant the men already in the field. Not even a German would call this fair.

I am often asked where the young medical men are, what the matter is with them that there are not enough to do the commonplace work that makes up so large a part of the army medical officer's day. If they were all the sons of physicians I should say that they took after some of their fathers.

THE CHARACTER OF THE MEDICAL WORK

The opinion is often expressed that the highly trained physician is wasting his time in the Army, that he would be doing more good staying at home attending to the civilian population. At times this view expresses an honest conviction; occasionally, alas, it is used to drug an awakening sense of duty. As I see it, there is an abundance of worthy opportunity for the man able to grasp it.

It is true, of course, that commonplace work predominates; that there is plenty of boy's work, as some have called it; that for the moment at certain places there is plenty of no work at all—to use a Hibernianism—plenty of just staying on the job waiting and prepared, which, by the way, is a new thing for us. It is true, to repeat, that there are plenty of all these nonpicturesque and nonstimulating things; yet those who are making up their decision to serve or not, if they let the question rest here, miss the most vital point of all. In the last analysis, no one enters the service to do special medical work, to increase one's scientific reputation or to gain one. The basic idea is to help win this war in the shortest possible time, or, as the boys say, "to lick the Germans;" and nothing which contributes to this end, however tedious and

commonplace it may be, is beneath my dignity or, saving your grace, beneath yours.

It must be admitted that it is hard at times to hold true to this glorified view of the work, especially when one sees the inequality of sacrifice made by men even in the service, and when one learns that some of them are smugly adding to their substance even in war time and one knows that his own is lessening; but hold true to it one must. It is your guiding star in this lonely job of measuring up to your duty in your allotted place. If you think differently and stay out of the service when you should serve, you must be prepared some day to tell your daughter—it will not be necessary to tell her mother, for she will have it buried in her heart—that her girl chum's father, not her own father, kept the faith. It has made me heart-sick and weary beyond words to sit at my desk in the Surgeon-General's Office and read and hear this and the other threadbare excuse which medical men give for not joining the Army Medical Corps. As I look at it after a year of trying to do my bit, those who make these excuses have lost their American heritage of red blood.

ABSTRACT OF DISCUSSION

Major Charles W. Richardson, Washington, D. C.: I would like to have heard from some civilian doctor on this subject. It is a half-stated subject when it is stated from the military side only. I played the game from the beginning. First, as chairman of the subsection of otolaryngology in the Council of National Defense, then as chief of the otolaryngologic section, division of surgery of the head, Surgeon-General's Office, during the absence of Lieutenant-Colonel Mosher on temporary duty in France, through legislative work, and later in the organization of the section of defects of hearing and speech in the division of physical reconstruction. As to the assignment of service: It is Colonel Mosher's desire to keep all the men in otolaryngology accepted for that service. It is to his interest to do so, and he feels obligated to do it for you; but that will be prevalent largely in the case of men over 40. But there are times, as you know, when the general service is pressed—I mean the field service. They have had two or three such pressures and they have had to take the younger men and put them in the field service. In going over the cards in the personnel division last winter, when I was in the division of surgery of the head, I found six men prominent in otolaryngology who were in field service. I took the liberty of writing them a personal letter, not from the office, but from my home, and asking if they would like to go back into otolaryngology and be assigned there. I was very much surprised to receive a letter from each and every one of them telling me that they were delighted with their regimental service; that they were learning more there than they thought they would ever be able to learn in medicine, and they were more than willing to stay where they were. That was interesting to me. So, remember one thing, that the exemptions for you in otolaryngology will be maintained if it is possible to do it. For younger men, under 35, the exemption cannot be made, because these men are the men who have not gotten so far into laryngology; they have not gotten so far away from general medicine or general surgery, and they can be spared for field service. Always remember that when you put in your application for service you have Colonel Mosher as your guardian in the office, and he will take care of you.

Capt. Robert H. Fowler, New York: At Camp Mills last summer we were "first on the ground" in more senses than one, for the officers slept in open tents that had no floors. One week after we arrived, the pegs were placed, the poles up, and we had a hospital going with 400 men under tentage. The "head specialists," including the eye surgeons, were given one small room, and, with the whole Rainbow Division in an open camp to look after, we soon found that there were more cases of nose, throat and ear trouble than we could handle. Chronic conditions had to be excluded, and those patients were given preference where treatment or operation promised to send soldiers quickly back into the line. Every tenth patient who reaches the hospital is referred to our section for treatment, and often there is need for ear and throat operations which, from the Army standpoint, are very much worth while; and which gain us the respect of the Regular Army officer in that they add strength to the fighting unit.

The chance to help an individual soldier "carry on" is frequently seen, and, in addition, it sometimes happens that there is opportunity to expedite matters for a whole unit in a pinch. At the Garden City Aviation Concentration Camp, in November, an epidemic of diphtheria threatened, as one or two cases had occurred. By making 300 cultures, and thus finding and isolating six "carriers," it was made possible for three squadrons to be moved to a distant assignment on schedule.

During the first two months of my assignment at the base hospital, Camp Shelby, in charge of the ear department, more than 100 cases of acute purulent mastoids were operated; thirty similar operations had been done during the two weeks preceding my arrival. This large number of acute mastoid infections in one camp during a space of three months was the more surprising in that there had been at the two other camps, where I had been stationed, during the preceding five months, only half a dozen cases altogether. The fact is that at Camp Shelby there was a streptococcus epidemic, following a measles epidemic, which had a specific tendency to attack such tissues as the mastoid cells. It has been suggested in one of the papers on "Contagion in Military Camps" that when an epidemic has assumed large proportions, the virulence of the organism becomes greater. Perhaps it is on this account that we found it imperative to act with the greatest promptness in these cases, since complicating mastoiditis followed more rapidly during this epidemic than in the sporadic type of mastoiditis seen ordinarily in civil life. Under the circumstances, we arranged to have the otitis cases reported early from the field hospitals and regimental infirmaries. Incision of the drum done promptly arrested the progress of a certain number of these cases, but in a surprisingly large proportion it was necessary to operate on the mastoid, and it is gratifying that nine out of ten of the soldiers who had the mastoid operation performed on them during the winter months at Camp Shelby, are already doing full duty. One point came out quite clearly, and my conviction on this is very firm, that the best results are obtained by immediate operation when there is evidence of acute purulent mastoiditis. Early operation is safe; danger lies in delay.

Dr. H. W. Loeb, St. Louis: This war has made a new era in surgery, in war surgery, especially in this country, so far as it has established the validity of ophthalmology, otology and rhinology as essential elements of the organization. Last year we left this to a committee, and this committee has done its work, with the help of the ophthalmologic committee; but I think it should be known that it is through the agency of Colonel Lyster, Colonel Parker, Colonel Mosher, Colonel Richardson, Colonel Black, Colonel de Schweinitz, Colonel Bordley, Colonel Greenwood and also Colonel Wood that this plan contemplated a year ago has been established, and I do not believe that the time will ever come again when the United States Army Medical Service will be carried on without these great and important specialties being given their proper place.

Capt. John B. Potts, Omaha: I had the pleasure of being associated with Captain Fowler for two months in Camp Shelby during the epidemic of mastoiditis which occurred at that time. When I went there—Captain Fowler preceded me by a month—I questioned whether it was necessary to do as many mastoid operations as were being done. Captain Fowler showed me his cases and we went over the histories. Previous to Captain Fowler's arrival they had attempted to wait two or three weeks for the ordinary mastoid to break down, or to decide whether it was absolutely necessary to operate, and their results had not been satisfactory. The percentage of cases that did badly was large—larger than it should have been; much larger than in civilian practice; larger than I have seen in epidemics. Captain Fowler was

convinced that he was dealing with an epidemic different from anything he had encountered before, and which required more radical measures in the sense that he would have to operate sooner—less radical in the sense that he would get drainage sooner. The result was very striking. From the time he began operations early the basilar meningitis and other complications practically stopped. He did not operate in every case. He had recourse to the roentgen ray, blood count, bacterial count and consultation with an internist, surrounding himself with every safeguard before operating. In the fulminating cases, operation was performed at once. I think the early operation saved many lives. It was simple, because many of these cases followed pneumonia and some measles. Complications occurred less often. One patient developed an endocarditis as a complication after the operation. The mastoid healed nicely, and there were no complications, but about three weeks after the operation, when the mastoid wound was apparently healed, the temperature rose again, because of an acute endocarditis. This quieted down and the man's temperature was normal for two days, and we thought he was going to get well; then his temperature rose again, but it was of an entirely different character, showing that he was developing a meningitis, which caused his death. The necropsy gave evidence of extension from the mastoid. I believe the meningitis was secondary to the endocarditis. In a case of scarlet fever we delayed operation until about the seventh or eighth day. The mastoid complications appeared several days before the temperature from the scarlet fever dropped. A paracentesis was done immediately so that we had drainage. About the second or third day after the paracentesis his temperature began to rise again, as high as 102 and 103 F. He was a very sick man; he had a great amount of pain. When the mastoid was opened the bone was almost black and very necrotic. On the second day after his operation his symptoms cleared up and he made an uneventful recovery. With such a rapid destruction of the mastoid it seems to me we were taking a great chance waiting as long as we did.

POLLAKIURIA AS A FUNCTIONAL DISTURBANCE DUE TO EYESTRAIN

CAUSES OF EXCESSIVE FREQUENCY OF MICTURATION *

W. W. KAHN, M.D.
DETROIT

It is a remarkable fact that in such a well systematized science as medicine, so perfectly obvious a fact as micturition has escaped a clear-cut definition of its various phenomena. The looseness of the terminology has engendered looseness of diagnosis and therapy. We are, therefore, daily encountering essays in our medical literature dealing with incontinence of urine which mean principally excessive frequency of urination. I was as much a sinner as the rest, as may be seen by one of my previous articles,[1] in which I reported sixty-four cases of pollakiuria under the false title of polyuria.

DEFINING THE SUBJECT

The trouble lies in choosing one term to describe two widely different phenomena. In a medical dictionary[2] we find, for instance, anuria defined as (1) retention of urine and (2) suppression of urine. The first means mechanical retention of urine in the bladder or pelvis of the kidney, while the second means a suppression of excretion of urine. These phenomena are entirely different in causation, prognosis and treatment.

Oliguria is defined as an abnormally diminished discharge or secretion of urine — two widely different pathologic entities.

Incontinence of urine is defined as unconscious, involuntary dribbling of the urine, due to paralysis or inactivity of the sphincter vesicae or due to an overdistention of the bladder (incontinentia urinae paradoxa). This is a very good definition; however, many medical writers do not keep strictly to the meaning of the term, but include in their themes two other maladies, namely, the excessive frequency of micturition, or pollakiuria, and enuresis.

Enuresis has also two meanings, according to Foster's definitions: it may mean involuntary micturition, either diurnal or nocturnal, or it may mean incontinence of urine from all kinds of causes.

In order to bring clarity to my mind as to the symptomatology of micturition in relation to its frequency, but not the amount of urine, I classified it thus:

1. Anuria, absolute suppression of micturition.
2. Oliguria, abnormally diminished frequency of micturition.
3. Orthuria, normal frequency of urination.
4. Pollakiuria, excessive frequency of micturition.
5. Enuresis, diurnal or nocturnal involuntary discharge of urine.
6. Incontinentia urinae, constant and involuntary dribbling of the urine.

FREQUENCY OF MICTURITION

The only difficulty in this classification was to decide on the normal frequency of micturition. To find this norm of frequency I searched the textbooks on physiology in vain. I placed it, after numerous consultations with able general practitioners and urologists, at from three to five evacuations of the bladder during the waking hours. Any necessity of breaking one's sleep to void urine is pathologic, except when an abnormal amount of fluid has been taken before retiring. With from three to five evacuations of the bladder during the day as a norm, one evacuation a day would come under the head of oliguria, and six or more evacuations during the day, or those that wake a person from sleep to urinate, would come under the head of pollakiuria.

That the subject of disorders of micturition is very vital is proved by the great number of articles that have lately appeared in our medical journals.

One excellent article, written by Dr. H. G. Bugbee,[3] has a nearly correct title, namely, "Frequency of Urination in Women." What he meant was excessive frequency of urination in women. In this essay he has gathered statistically the causes of too frequent micturition in a thousand women and girls, and finds that increased frequency is one of the most common disorders of urination; in his tabulated findings he comes to the conclusion that all except thirty-four cases show some local lesion, not only in the bladder, but anywhere in the urinary tract. The thirty-four cases not showing any pathologic change whatsoever, he classifies under the head of neurosis.

NEUROSIS AND MICTURITION

In spite of the small number of neurotic cases found, Bugbee seems to feel the "stigma" of not having any pathologic lesions in these thirty-four patients, and the

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Kahn, W. W.: The Systemic Diseases Caused by Eyestrain, Detroit Med. Jour., 1916, 16, 98.
2. Foster, F. D.: Encyclopaedic Medical Dictionary.
3. Bugbee, H. G.: Frequency of Urination in Women, THE JOURNAL A. M. A., March 3, 1917, p. 693.

following physicians who discussed his paper seemed to agree with him fully.

John R. Caulk of St. Louis[3] declares:

This class of cases, seen frequently in young women who have been stamped as neurasthenics and hysterics, we must be careful about. Urologists who use the cystoscope do not make such mistakes very often, but it is the commonest mistake for the general practitioner to make. These patients almost always have gone for years as neurasthenics. I recognize that there is a neurotic bladder, but we have to be very careful in eliminating every factor before diagnosing a neurotic bladder, because so many of these cases are due to pathologic conditions at the vesical neck.

Theodore Baker of Pittsburgh[3] also was very suspicious about these thirty-four cases. He warns:

We should look with extreme suspicion on the diagnosis of a neurosis; because we cannot find any pathologic lesion, I think we should be very careful about calling it a pure neurosis. I want to call attention to syphilis as a cause of urinary disturbance.

James A. Gardner of Buffalo[3] also coincides with Baker as to the probability of Bugbee's having overlooked organic lesions in the so-called neurosis cases. He says:

Most of those cases are called neuroses because we are faulty in our diagnosis; we are not able to find out just where the trouble lies.

A. B. Cecil of Los Angeles[3] came the nearest to truth when he said:

It is the so-called neuroses in which we are interested. The gross causes of frequency of urination we all recognize; but when we speak of "frequency" in women it brings to the urologist's mind that type of case in which we are absolutely unable to find anything the matter with the patient. We do not see this type of cases among men. It would seem that, perhaps, there may be in women a hypersensibility, where even normal urine under slight pressure will produce the desire to urinate.

If we take into consideration the limitations of our present medical knowledge and the inaccessibility of many lesions to our senses, it stands to reason that the thirty-four patients out of a thousand, in whom Dr. Bugbee failed to find any local lesions, probably had these, but they were not demonstrable by our present methods of diagnosis.

If, however, Bugbee and the others are right, as they evidently are, in demonstrating pathologic changes in the urinary organs of all cases of pollakiuria, is there any room or need for a neurosis theory, and if so, what lessons in practical therapy can be derive from it?

Foster[4] says:

It is a matter of common experience that we feel the desire to make water sometimes when a large quantity and sometimes when a small quantity of urine has accumulated in the bladder. We have evidence that the bladder possesses to a very high degree that obscure continuous contraction which we speak of as "tone"; and, further, that the amount of its tone is exceedingly variable, the organ, quite independently of distinct efforts at micturition, being at one time contracted and at another flaccid and distended. When it is in a contracted state, a small quantity of fluid may exert the same effect on the vesical walls as a larger quantity when the bladder is flaccid. Hence, while the determining cause of the desire to make water is the pressure of the urine upon the vesical walls, the quantity needed to produce the necessary fulness is dependent on the amount of tonic contraction of the muscular fibers existing at the time. And we have evidence that this tone is regulated by the nervous system.

4. Foster, Michael: Textbook of Physiology, Ed. 4, New York, the Macmillan Company, p. 549.

The truth of this statement was brought home to me accidentally by a case I first saw July 2, 1915.

REPORT OF CASE

Mrs. J. K., aged 28, the wife of a working man, was a neurotic patient, if ever there was one. On account of her many ailments, she was unable to do her housework and had to go back to her parents. She complained of headache and a sensation of pressure over her eyebrows and of pain in her eyes. She vomited when the headache was severe. She also suffered from photophobia and asthenopia for near and distance. Her appetite was variable and her digestion poor. She was constipated and exceedingly nervous. Almost daily she was given to prolonged spells of crying and screaming, especially when somewhat irritated. Her sleep was exceedingly poor, disturbed by terrifying dreams, recurring regularly when she tried to doze off in the morning. She felt more or less constant pain in the legs and in both inguinal regions. Her hands and feet were always cold, with frequent tremors and numbness of the hands, which also felt excessively dry. Her menses were never regular; menstruations recurred about every two months and were scanty and painful. Riding on a street car made her feel sick and miserable. At the time of her visit she weighed only 93 pounds.

The status of her nervous system can be guessed from the fact that when asked to step into the next room so that I might learn how far she could see, she fell on her mother's neck, tearfully kissing her, and kept crying, "Goodbye, mother! Goodbye, mother!"

Her vision was fairly good (20/30). As a refraction under a mild cycloplegic of homatropin and cocain was unsuccessful, I ordered the instillation of atropin. For reasons of refraction, the use of atropin was kept up three weeks. The examination revealed her need for the correction:

R. E.		Cylinder plus 0.25 axis	60	Vision 20/16
L. E.	Sphere plus 0.12 with	cyl. plus 0.25 axis	180	Vision 20/10—

July 24, after three weeks' use of atropin, without glasses, she felt stronger, her feet felt hot, and her hands were warm and moist. She had no more headaches, but her head felt "big." There was no pain in the eyes, only soreness on pressure. Her appetite was ravenous. She could hardly get enough to eat. Her digestion was excellent. She had no more vomiting nor crying spells. She slept better and had no nightmare, but still had pain in the legs and slight attacks of pain in the groins. She asserted that she was gaining in weight.

It was on this date that she told me that, whereas she used to pass water every fifteen minutes during the day and five or six times during a night, she did not have to break her sleep any more, and that she urinated only two or three times during a day. Also, whereas her urine used to smell bad and show "brick dust deposit," it was now clear and odorless.

July 31, she reported that she slept excellently, and that her bowel movements were freer. Her menstruation was for the first time in her life painless and lasted nearly a week. She had no pain in the legs or groins, and her hands did not feel numb.

August 14, she reported no constipation, and she weighed 104 pounds, but complained of supra-orbital pain on the right side. She accepted for reading:

R. E.	plus 1.50 with	plus 0.25 axis,	60
L. E.	plus 1.75 with	plus 0.25 axis,	180

the lenses were to be worn in bifocal form. This was a case of premature presbyopia.

Oct. 5, 1916, she reported that she felt perfectly well in every respect. She weighed 117 pounds and had again taken up housekeeping. Her menses were more frequent and more normal in amount, occurring about every six or seven weeks, and lasting from four to five days. They were somewhat painful before the flow.

POLLAKIURIA AS A SYMPTOM OF EYESTRAIN

While this case is well worth reporting, on account of the patient's manifold symptoms and prompt recovery, the important point in connection with my thesis

is the fact that her pollakiuria disappeared during atropinization. Naturally, I jumped to the conventional explanation that the absorption of the atropin diminished the secretion of the urine and thereby remedied the all too frequent micturition, when one of the coincidences so frequent in the practice of medicine happened the same day, July 24, 1915.

A working man, aged about 35, came in to report the results of his refraction. Among other things, he told me that he did not have to micturate so frequently as before.

I had determined his refraction about three months before that day, using no atropin, and instilling only a few drops of homatropin as a cycloplegic. As the small amount of homatropin could not explain the permanent improvement, the only conclusion possible was that the relief of the nervous system from the irritation caused by eyestrain must have somehow influenced the frequency of micturition.

I had never heard of pollakiuria as a symptom of eyestrain, so I began a vain search in the medical literature for a previous mention of this form of neurosis in connection with the eye.

The Index Medicus for the last sixteen years does not give any citations of literature on pollakiuria as a symptom of eyestrain. Neither do the accessible books on diseases of the nervous system mention it.

Oppenheim[5] speaks thus of the neurotic aspect of pollakiuria: "Pollakiuria (strangury with frequent evacuation of small quantities of urine [sic]) is occasionally observed." And then: "We often find abnormal irritability of the bladder due to neurasthenia, fear and abnormal introspection."

Of the textbooks on ophthalmology, not one mentions pollakiuria; neither does George M. Gould's[6] storehouse of eyestrain lore give any record of its occurrence. Only Stephenson[7] and Doyne[8] mention a case of true polyuria as probably caused by eyestrain, but no mention was made of pollakiuria.

After having my attention drawn to that neurosis, I began a systematic inquiry as to the frequency of micturition in all my refraction cases, with results as set forth in the accompanying table.

RESULTS OF REFRACTION ON POLLAKIURIA

	Number of Cases	Reported	Recovered or Improved	No improvement
Men	140	55	32	23
Women	176	71	53	18
	316	126	85 (65%)	41 (35%)

From July, 1915, to January, 1918, I determined the refraction in at least 1,500 new cases. Of these, 316 persons (140 men and 176 women), or about 20 per cent. of all cases, suffered from pollakiuria. For example, they urinated oftener than five or six times during the day, or had to get up from their beds to void urine, or both.

Of my 316 patients, 126 (55 men and 71 women) returned to report. Of these 126 cases, 85 (32 men and 53 women), or about 65 per cent., reported great improvement or recovery, while 41 (23 men and 18 women), or 35 per cent., were not improved at all in that particular symptom.

5. Oppenheim, H.: Diseases of the Nervous System, Philadelphia, J. B. Lippincott Company, 1904.
6. Gould, G. M.: Biographic Clinics, Philadelphia, P. Blakiston's Son & Co., 1903.
7. Stephenson, Sydney: Eye-Strain in Every-Day Practice, New York, Paul B. Hoeber, 1913.
8. Doyne, R. W.: Brit. Med. Jour., 1910, 2, 361.

While the figures may seem startling, I do not attach much value to them. The number of cases is entirely too small to give us any valuable statistical figures. In an earlier essay[1] I had seventeen cases and reported seventeen cures, or 100 per cent. recoveries. They also depend greatly on the investigator's opinion as to what constitutes normal frequency of urination. But whether the percentages of recoveries are 65 or 25 or 20 or even 10 per cent. of the cases, the following conclusions stand out preeminently and are difficult to deny:

1. In my series of 316 cases, 140 patients were men. While their number was only slightly smaller than that of the women, the percentage of recoveries in women was twice as large as that of the men, a result very likely due to a greater nervous instability in the women.

2. The frequency of pollakiuria as a neurosis is immensely larger than we thought.

ORGANIC LESIONS AND NERVOUS IRRITABILITY

Bugbee and other urologists and gynecologists find some organic lesion in all, or nearly all, cases of pollakiuria. By experience they have learned that by treating the local lesions, they may bring the frequency of micturition back to normal. Although, in reply to a personal inquiry, Bugbee stated that he had no statistics ready on the results of the treatments, they must have been considerable or the profession would not unanimously connect this symptom with local lesions. These are facts not to be denied. On the other hand, we have here a series of some hundreds of cases of pollakiuria in which the patients were greatly benefited by refraction — a fact also not to be denied.

While I did not give a single one of my patients a physical examination, it is not likely that 100 per cent. of the eighty-five who improved, and of whom I have personal knowledge, had no local pathologic changes when an expert of Dr. Bugbee's caliber found less than 4 per cent. of all pollakiuria cases free from any visible lesions. So taking Dr. Bugbee's figures as correct, we must conclude that while nearly all the patients have some organic lesion, these lesions are only partial causes of the symptom, and that the general nervous system evidently has as much to do with it as the local abnormality has, if not more.

It is generally said that the practice of a specialty narrows the vision of the specialist, that in time every specialist comes to look at the entity of the body through the spectacles of his particular specialty, and that specialists claim they can cure the same diseases by the practice of their widely different methods.

Often the oculist, the proctologist, the gastrologist, the gynecologist and others pride themselves on having found and demonstrated the real cause of a certain malady and the cure of it by their own respective specialties.

It all sounds ridiculous enough, to be sure, but it is still more ludicrous to deny the claims of all these earnest and expert men. Their statements are absolutely true; they really cure their patients' ailments, and each one of us can bear witness to the truth of their contentions. How may this be explained? By what I have termed the phenomenon of multiple causation of symptoms. A symptom is only a local or general manifestation of more than one cause operating in the human body. The elimination of one or more of these causes makes the symptom disappear.

In local manifestations, one of the dominant causes is always a local pathologic condition, while another is an irritated or weakened nervous system. As causes are different in values, a cure will mainly depend on the elimination of one or more of the dominant factors.

In my thesis on pollakiuria as a symptom of eyestrain there are at least two causes. One is the local pathologic change in one of the urinary organs, and the other is the hyperirritability of the nervous system caused by eyestrain. If the local lesion is dominant, no amount of correction of refraction will relieve the patient; only local treatment can do it. But when the local lesion is slight or negligible, the relief of the nervous system from the excess of nervous irritation will bring about a cure.

The disturbing cause in my series of cases was eyestrain, but that does not exclude malfunctions of other organs from having similar effects on the bladder.

CONCLUSIONS

1. Pollakiuria, or excessive frequency of micturition, must be strictly differentiated from polyuria and incontinence of urine.

2. In a great percentage of cases, pollakiuria is a neurosis, brought about by malfunction of a distant organ, especially the eye.

3. Contrary to the general medical opinion, pollakiuria is nearly as frequent in men as in women.

4. Before a surgical interference is tried, a careful refraction should be indicated in all cases of pollakiuria, except those in which it would have to be done for reasons other than the excessive frequency of urination.

ABSTRACT OF DISCUSSION

Dr. Isaac Hartshorne, New York: Dr. Kahn's differentiation of nomenclature is interesting and seems to be correct. In the first case cited, while evidently an eyestrain case, it would seem possible that the use of atropin for three weeks not only anesthetized accommodation but also reached the general circulation sufficiently to improve its tone together with some action on the smooth muscle fibers of the bladder wall. Dr. Kahn's relieved cases may be classified under functional disorder of the bladder from sympathetic irritation. At least three observers have reported cases of enuresis relieved by proper glasses.

The use of atropin by mouth not only produces cycloplegia but also diminishes the flow of urine by diminishing general glandular activity and by lessening the movements of the bladder wall.

Furthermore, if 1 per cent. atropin is used in the eye for cycloplegia, then approximately 1/120 grain of atropin is instilled into the eye with each drop, or about 1/60 grain in both eyes. Is it not probable that nearly as much of the drug is absorbed into the general circulation from the conjunctival sac as from the mouth and stomach, especially when the tear ducts are not held to prevent the passage of the drug to the nose? If this is so, then 1/60 grain three times a day becomes a faily large dose of atropin, and if continued after two or three days the alterations produced by large doses of atropin might well be expected. Atropin should not be used simply as a diagnostic test, but should be followed up by properly fitted glasses to reduce to a minimum the sympathetic reflex irritation. It is not the cycloplegia produced by atropin which tends to prove that eyestrain caused the bladder irritation, but the result obtained by correct lenses after the atropin has been stopped. It must be admitted that 65 per cent. of Dr. Kahn's cases were more or less permanently relieved; which doubtless would not have been the case had not proper glasses followed the use of one of the atropin group of drugs.

Dr. W. W. Kahn, Detroit: I want to qualify Dr. Hartshorne's statement about the use of atropin. Some of the patients received homatropin. A few drops of homatropin would not affect the nervous system as much as atropin would.

As to my method, it simply takes eyestrain symptoms from the domain of uncertainties and guesses and puts it in the domain of certainties. It makes things clear to you and your patients. You know that so many patients get better and so many do not. Arguments which are not based on facts are useless.

DISCIFORM KERATITIS *

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This form of keratitis, first fully described by Fuchs, is fairly well known to us all. It is not, however, a common disease, and is not so familiar to the greater number of ophthalmologists that a review of its characteristics will be without value.

Disciform keratitis is characterized by the appearance of a small approximately circular area of infiltration at or near the center of the cornea, accompanied by irregularity of the epithelium covering the infiltrated area, and partial or complete loss of sensation over that area. The infiltration slowly increases. From one to three complete or incomplete concentric zones or rings of denser infiltration appear at varying distances from the center of the patch. About one third of the cornea is usually involved, but a smaller or a much larger area may be included. From one to three weeks after the infiltration begins, one, and sometimes two or three, small yellowish white spots develop in the substantia propria at or near the center of the infiltrated area, located sometimes near the surface of the cornea, sometimes deep in corneal tissues. In many of the cases, fine, fairly straight, grayish white lines are observed, usually radiating from the center of the infiltrated area. These, according to Fuchs, are due to a wrinkling of Descemet's membrane.

The affection continues to progress for a period of from two to four months, and then gradually subsides with a permanent and not very dense corneal opacity throughout the infiltrated area. A quiet condition is reached in from three to eight months after the onset.

The symptoms are not severe unless distressing complications arise. They consist of increased lacrimation, very little pain, photophobia of a mild character, and dimness of vision, the degree of which depends on the density and location of the infiltrated area. There is also some pericorneal injection.

The complications are anterior uveitis; iritis, which may be mild or severe; and increase in tension, which may be very slight, lasting but a day or two, or may be intense, amounting to a severe secondary glaucoma, necessitating operative measures for relief. Corneal ulceration seldom develops; when it does, it is of a superficial character. The etiology is unknown.

Until recently the usual treatment has been of little avail. Cleansing the eye with boric acid solution often enough to keep it free from the slight secretion, and using mild antiseptics, together with measures to prevent the formation of posterior synechiae and to control the symptoms arising from complications, are the only measures that appear to be of value locally. In addition, the general condition of the patient is made as good as possible.

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The prognosis is good so far as the integrity of the eye is concerned, provided destruction does not occur because of complications.

The following is a report of three cases I have observed.

REPORT OF CASES

CASE 1.—A. W. S., a man, aged 33, was referred to me by Dr. Henry W. Wandless. The patient had been under treatment by various ophthalmologists for an affection of the right eye for six weeks. A typical condition of disciform keratitis of a mild type was present, namely, a central whitish, opaque spot measuring about 5 mm. in diameter, and irregular in shape. It was situated in the substantia propria about one third of the thickness of the cornea below the anterior surface. It was surrounded by an approximately circular area of infiltrated cornea, consisting of alternating concentric zones of lesser and greater degrees of infiltration, the zones of greater infiltration being narrower than those of lesser infiltration. The zones or rings were not perfectly regular, but varied in thickness; nor was the infiltration of equal density throughout the zones. The epithelium over the infiltrated area was stippled, or slightly roughened, and at the center appeared depressed, on account of the loss of a part of the epithelial layer. There were a few narrow grayish lines radiating from the center of the area apparently at or near the posterior surface of the cornea. There was little irritation, slightly increased lacrimation and some photophobia. There was no pain of moment. The sensitiveness of the cornea was reduced over the affected area. There was a slight pericorneal injection below. The iris was a trifle less mobile than its fellow, but no evidence of exudation in the interior of the eye appeared. The tension was normal. The patient's general health was very good. The urine showed a slight excess of indican, but was otherwise normal. The Wassermann reaction was negative. There was no physical evidence of tuberculosis.

I made a diagnosis of disciform keratitis probably due to external infection, and was of the opinion that recovery would ensue in from six weeks to three months, leaving a pronounced thin opacity.

In regard to the treatment, I advised that a moderate dilatation of the iris be maintained so long as the process appeared to have any activity, provided an increase of tension did not develop. I also advised the bathing of the eye with a hot solution of boric acid twenty minutes three times daily and the introduction of an ointment of mercuric chlorid, 1:5,000, after each bathing. Meanwhile, the system was to be kept in the best possible condition. I advised the wearing of tinted glasses, if photophobia was annoying.

The symptoms of activity in this case gradually subsided, and the healing was complete in about five months from the onset of the affection. The patient's vision is now approximately one-half the normal.

CASE 2.—Mrs. A. L., aged 39, first noticed a slight blurring of the vision of the right eye, Sept. 7, 1917. There was no pain. September 11, the patient consulted Dr. John M. Wheeler,[1] who immediately admitted her to the New York Eye and Ear Infirmary. I was called in consultation, September 12. Dr. Wheeler had observed a faint infiltration of the cornea, had advised the patient to rest in bed, and had ordered the eye bathed one-half hour at a time with a hot solution of boric acid, and the instillation of atropin, 1 per cent., sufficiently often to keep the pupil dilated. September 12, there was a faint, almost circular uniform area of infiltration about 2 mm. in diameter over part of the pupillary area, slightly to the inner side and below the center of the cornea. It was a little more dense at the center than at the periphery. The epithelium over this area was very slightly roughened, that is, stippled. There was no pain. The iris reacted normally. The interior was normal. The vision was $^{20}/_{30}$ +. The vessels of the ocular conjunctive were slightly increased in size and number. The patient's general condition was apparently excellent. The urine, the blood count and the Wassermann reaction were all negative. There was no history of trauma. Although at this stage there was no central distinctive spot and no concentric ring of denser infiltration, a diagnosis of corneal infiltration, probably disciform keratitis in its earliest stage, was made.

Examination with high magnification showed defects in the surface epithelium over the area corresponding to the infiltration. The infiltration consisted of minute isolated deposits apparently situated in the substantia propria immediately beneath Bowman's membrane, extending into only a few of the lamellae, being denser and deeper at the center and growing gradually less toward the periphery of the infiltrated area. The infiltration had the appearance of an aggregation of irregular granules. There was no distinctive central depression or opening which might have been regarded as the point of entrance of an infected foreign body. The cornea was less sensitive over the affected area. Other parts of the cornea, the conjunctiva, the lids, etc., were of normal sensitiveness.

In addition to the treatment advised by Dr. Wheeler, a mercurial was given internally and an ointment of mercuric chlorid and petrolatum, 1:5,000, was introduced into the eye after each bathing.

The granular infiltration apparently ceased to develop for forty-eight hours. Then there was an increase, which continued until a fully developed disciform keratitis was present about two weeks later.

September 15, a slight increase in tension was noticed when the atropin was discontinued. As the slight increase of tension persisted, September 16, pilocarpin, 1 per cent., was instilled twice daily. The anterior chamber was of moderate depth. The tension subsided in two or three days, and the pilocarpin was discontinued. The infiltration increased slowly but steadily. September 24, two partly formed concentric rings or zones of denser infiltration had formed; the limits of the infiltrated area were ill defined. There was no central opaque points or spot, nor was there any pain. The ocular conjunctiva was slightly congested. About September 26, Dr. May saw the patient and advised the use of a 10 per cent. solution of ethyl-morphin hydrochlorid (dionin) once daily. After the first instillation, the tension became high and the cornea steamy, and the patient suffered an attack of acute glaucoma, which lasted two to three days, but was controlled by use of physostigmin (eserin) and pilocarpin. The anterior chamber was deep. October 3, the iris was involved in a mild plastic iritis, with the formation of some posterior synechiae, particularly at the lower pupillary margin. There was no pain, the tension was normal, and the anterior chamber was considerably deeper than normal. The iris now took on a greenish hue. The aqueous was not appreciably turbid. There was a very small, central, deep-seated, yellowish white spot. In addition to general tonic treatment, mercury by inunction was advised, and the desirability of using tuberculin was considered and recommended. About October 22, Dr. May, who was in charge of the case, gave tuberculin T. O., 1 mg. hypodermically, and repeated the dose four or five days later, increasing the quantity. There was a mild local reaction, evidenced by increased flushing of the ocular conjunctiva after each injection, and a very slight general reaction after the last.

October 30, I saw the patient in consultation with Drs. May and Reese. There was then a decided involvement of the anterior portion of the uveal tract. The anterior chamber was deep. The pupil was irregular, because of posterior synechiae. Atropin had been withheld because of the history of increased tension, but it was now used vigorously without causing any increase in tension. Ethyl-morphin hydrochlorid had again been employed without causing any appreciable change in tension. It was suggested that tuberculin in therapeutic dose be given every four or five days, and that mercurial inunctions be continued and given regularly, precautions against ptyalism being taken. The vision was $^{5}/_{200}$. The grayish white spot in the corneal tissue was about 1 mm. in diameter. This general line of treatment was continued. The patient was again seen in consultation with

1. In the absence of Dr. C. H. May from the city this patient first came under the care of Dr. John M. Wheeler for the treatment of this affection. Dr. Wheeler called me in consultation and I was privileged to see the case frequently at first, less frequently later up to November 27. By the courtesy of Dr. May, who has furnished me with subsequent data, I am enabled to report the case.

Drs. May and Reese, November 27. At this time it was very evident that a decided change for the better had taken place. The pericorneal injection had largely disappeared. The anterior chamber was not as deep as before. The iris was more nearly of a normal hue. The vision was improving. The central grayish white spot was smaller and less dense. The treatment consisted of tuberculin administered hypodermically. Mercurial inunctions and general tonic measures were administered systematically, also atropin, and ethyl-morphin hydrochlorid. The patient steadily continued to improve. About January 20, she was virtually well. There still remains a thin opacity of the cornea throughout almost the entire area of the infiltration. The central white spot is scarcely more dense than the surrounding opacity. There are still a few small synechiae showing little, if at all, when the pupil is contracted. The vision equals 20/30.

A peculiar feature of the case is the almost entire absence of pain. The use of tuberculin and mercury appear to have been beneficial.

CASE 3.—Mr. D. F., aged 18, was brought to my office by Dr. A. J. Greenberger, Nov. 22, 1917. November 12, the patient observed that the left eye was watering and that his vision through it was poorer than through the right eye. He thought he had pink eye. There was no pain. He consulted an ophthalmologist, who made a diagnosis of erosion of the cornea.

When I saw him, there was an irregularly circular infiltration of the left cornea, slightly above and to the nasal side of the center of the cornea, as well as a few spots of infiltration extending downward and toward the nasal side. The epithelium was roughened over the circular area, and a circular zone of denser infiltration was disposed just inside the border of the circular patch of infiltration. The anterior chamber was deep and the tension normal. The cornea was sensitive over the infiltrated area. The iris reacted readily. The vision was 3/200.

In addition to general tonic treatment, red mercuric iodid, 1/60 grain, three times a day, was prescribed. Locally, bathing the eye with a hot solution of boric acid and sodium borate, the instillation of atropin, 0.5 per cent. solution, often enough to keep the pupil moderately dilated, and the introduction of an ointment of mercuric chlorid and petrolatum, 1:5,000, in small quantity, into the eye after each bathing.

December 3, there had been but little change. In addition to the foregoing I advised a diagnostic dose of tuberculin T. O., 1 mg., to be repeated four days later in a dose of 1.5 mg., if no reaction was observed after the first dose. The tuberculin was given, resulting in a mild general reaction and a slight increase in the flushing of the ocular conjunctiva of the affected eye.

December 13, the iris was slightly congested. The cornea was about the same, except that a very small yellowish white spot had become apparent near the lower inner part of the irregularly circular patch of infiltration, situated about half way between the anterior and posterior surfaces of the cornea. A faint inner zone of denser infiltration was beginning to appear. The ocular conjunctiva was slightly congested, and two small vessels extended from the margin of the cornea into the infiltrated area.

December 20, the area of infiltration was larger. The iris was widely dilated. The tension was normal. The vascularity of the cornea was slightly greater. I continued the use of tuberculin B. E. in doses of 1/500 mg., injected every four or five days. The other features of the treatment remained the same.

December 31, there was a marked improvement.

Jan. 24, 1918, the eye continued to improve, vision being 20/100.

February 7, the infiltration was less. Only one small vessel ran from the conjunctiva to the spot of infiltration. The patient suffered no inconvenience.

The treatment now consists of tuberculin B. E., 1/500 mg., every four days, red mercuric iodid, 1/60 grain three times a day, and a nutritious diet. Locally the eye is cleansed with boric acid solution twice daily, an ointment of mercuric chlorid and petrolatum, 1:5,000, twice a day is applied, and atropin, 0.5 per cent. solution, is occasionally administered to provide against the possible formation of posterior synechiae.

February 28, the eye was quiet. A whitish, partly opaque patch occupied the site of the infiltration. The epithelium was intact and smooth. The vision was 20/30. Local treatment was discontinued. I advised that the use of tuberculin be continued four weeks longer.

OPINIONS FROM MEDICAL LITERATURE

Under the name of abscessus siccus corneae, Arlt of Vienna described this affection of the cornea as early as 1870, according to Fuchs, and taught the peculiarities of disciform keratitis to his students. Vossius[2] gives a very good description of disciform keratitis, but mentions it as an abortive interstitial keratitis. Grünert[3] reports seven cases, accepting Vossius' views of its proper classification. Fuchs[4] reviews the literature up to 1901, and reports on twenty-eight cases. In the seventh edition of his textbook, p. 189, he had described this affection as abscessus siccus corneae, after the teaching of Arlt, employing the designation "disciform keratitis" in 1901. Fuchs has observed disciform keratitis only as a monocular affection. Zani[5] reports three cases. In one case there is a history of a patient's having rubbed his eyes with hands contaminated with secretions from vaccine pustules.

Peters[6] reports a number of cases. He attributes the affection to a necrobiosis of the tissues, the true nature of which is not fully understood, resulting probably from disturbed innervation; and consequently he attributes the affection to impairment of nutrition. Injury to the endothelial layer induced by the edema resulting from trauma is responsible for the opacity. Infection or an abscess is responsible for the disk only in exceptional cases. Hadano,[7] working in Peters' clinic, examined tissues scooped from the center of the affected area in a case of disciform keratitis. He is of the opinion that he has confirmed Peters' contention, declaring, "A study of the tissue removed revealed no signs of inflammatory infiltration — only a few nuclei were found in the periphery and none in the central portion." No micro-organisms were found. Meller's[8] observations were based on the histologic examination of an eye which presented clinically the appearance of parenchymatous keratitis with a disk-like opacity in the deeper layer of the corneae. Secondary glaucoma developed as a result of a complicating uveitis. A shallow corneal ulcer had formed at the center of the cornea, and the globe was enucleated.

Findings.—The center of the cornea was the seat of an infiltrated area which included the substantia propria from Bowman's to Descemet's membrane. The epithelium was infiltrated with free, small, round cells, and was reduced to several layers at the center of the cornea. Bowman's membrane was normal. Descemet's membrane was thrown into numerous folds. Closely adherent to Descemet's membrane posteriorly was a thick exudation of fibrin which had the form of a disk. Meller summarizes as follows:

"1. It consists of a well circumscribed disease focus, which undoubtedly is produced by an infection. The remainder of the cornea is healthy, with the exception of slight secondary changes.

2. Vossius: Berl. klin. Wchnschr., 1885, Nos. 43 and 44.
3. Grünert: Klin. Monatsbl. f. Augenh., 1900, **38**, 10.
4. Fuchs: Klin. Monatsbl. f. Augenh., 1901, **39**, 513.
5. Zani: Ann. di ottol., Pavia, **41**, 756.
6. Peters: Arch. f. Ophth. (Graefe's), 1906, **57**, 93.
7. Hadano: Ztschr. f. Augenh., October, 1905.
8. Meller: Klin. Monatsbl. f. Augenh., October, 1905.

"2. The condition consists of an inflammatory infiltration, which proceeds from a point of infection in the surface, uniformly in all directions into the surrounding parenchyma, and also into the depth of the cornea, and produces a disk-shaped lesion with more strongly saturated edges.

"3. This tendency to spread soon disappears, and a total necrosis of the infiltrate appears, which affects probably the cause of the process as well. Bacteriologic examination both intra vitam and in the sections was negative. This necrosis affects first the infiltrate, while the corneal lamellae remain intact, except where they are destroyed by the infiltration. The subsequent long-continuing inflammatory condition of the eye is the reaction of the healthy tissue against the dead tissue in the corneal parenchyma, a process of sequestration which in the avascular cornea is necessarily slow. The ultimate prognosis as to vision is poor because the tissue is infiltrated from the margin by cells, which finally produce scar tissue, and remain as a permanent opacity."

He believes that keratitis punctata superficialis is produced by the same pathologic changes.

Posey[9] reports two cases. In one case both eyes were involved. Veasey[10] reports one case. Zentmayer[11] reports three cases, one of which followed a variolus ulcer and one, herpes corneae. Landman[12] reports two cases, both of which followed doubtful injuries. There was no irritation in the one, and slight irritation in the other. He regards the condition as one of inflammatory infiltration. Monthus[13] describes two cases, one of which was bilateral, coming on after articular rheumatism, with cardiac lesions, in a patient with inherited syphilis. Under the title "Disciform and Postvaccinal Keratitis," Schirmer[14] reports seven cases resembling Fuchs' disciform keratitis, some of which were apparently due to infection with vaccine virus. He experimented with rabbits and apparently convinced himself that disciform keratitis in the human being is the result of infection with this virus. Erdmann[15] observed three cases. Each had increased tension at some period of the disease, a symptom that he thinks is often overlooked. He regards the disease as a neuropathic affection, and believes that the tissue necrosis is not due to an unknown bacterium, as suggested by Fuchs, but rather to disturbed innervation—the view already advanced by Peters. E. V. L. Brown[16] reports two cases, one in a boy with the stigmata of inherited syphilis. There were extensive posterior synechiae.

RESULTS OF OBSERVATIONS

In the seventy-two cases observed and collated, the youngest patient was 11 and the oldest 62 years of age. Disciform keratitis is a rare disease and with few exceptions is monocular.

Its period of activity varies from six weeks to five months. It may run a very mild course, or it may be accompanied by complications that may necessitate removal of the eyeball.

The etiology is not proved. The history of the cases and the changes observable at the onset of the affection make it evident that the first departure from the normal condition takes place in the very superficial parts of the cornea, such as the epithelium and outer lamellae, thus strongly supporting Fuchs' contention that the process is due to external infection. The clinical picture is so different from that following other forms of tissue necrosis due to disturbances of innervation and consequent impairment of nutrition, and the histologic findings (Meller and Hadano) so indicative of local irritation, that the theory of Peters apparently cannot be accepted. The symptom that seems to support Peters' views is that of loss of sensibility, which occurs in many but not in all of the cases. The nature of this infection is yet to be determined.

Schirmer's suggestion, based on his experiments with vaccine virus does not carry conviction. None of us who has seen infection of human eyes with vaccine virus has observed a condition resembling disciform keratitis. Infection of the eye with vaccine virus usually involves the eyelids. It has been my fortune to see also involvement of the cornea in two cases. The infiltration was not accompanied by the formation of definite concentric rings of denser infiltration, nor was there a development of the usual whitish yellow spot or spots. In these cases the infiltration disappeared, leaving almost no trace, the process clearing up within three weeks. The behavior of the patients treated with tuberculin, as reported in the foregoing, together with the clinical manifestations of the disease, strongly suggests a tuberculous process, in spite of the fact that the histologic examination (Meller and Hadano) failed to disclose micro-organisms.

While in other respects the affection does not present the ordinary clinical picture of tuberculosis of the cornea, the appearance of the yellowish white spot, after the disease has existed from ten days to three or four weeks, closely resembles the yellowish white foci observed in tuberculous keratitis. The apparent local reaction to diagnostic doses of tuberculin and the apparently favorable results from therapeutic doses of tuberculin are very suggestive of a tuberculous process. The effect of tuberculin in two cases is, of course, not enough to establish etiology, but it is enough to encourage the further use of tuberculin in these cases and the further observation of such cases with a possible tuberculous origin in view.

9. Posey: Ophthalmology, 1906, **2**, 434.
10. Veasey: Medicine, December, 1906.
11. Zentmayer: Ophth. Rec., **24**, 42.
12. Landman, O.: Arch. Ophth., 1907, **36**, 367.
13. Monthus, A.: Arch. d'Opht., 1906, **27**, 105.
14. Schirmer: Arch. f. Ophth. (Graefe's), 1908, **59**, 133.
15. Erdmann: Ztschr. f. Augenh., 1909, **24**, 249.
16. Brown, E. V. L.: Ophth. Rec., August, 1908, p. 418.

ABSTRACT OF DISCUSSION

DR. WILLIAM ZENTMAYER, Philadelphia: Disciform keratitis is a rare one, although it probably occurs with greater frequency than the literature would indicate. The number of reporters, most of them having observed several cases, is small, indicating that the disease is not generally recognized. It is, I believe, sometimes diagnosed wrongly, the presence of a disciform nebule, but lacking other features of the true affection, leading to the error. Knowing this mistake to have been made, I said in reporting a case of disciform keratitis some years ago, that the term, emphasizing as it does only one feature of the disease, led to the inclusion of corneal opacities presenting an annular form.

As Dr. Weeks points out, and as supported by one of his cases, anesthesia of the cornea over the affected area is not a constant feature. It has been present in only one half of the cases I have seen. The disk is often eccentrically located in the cornea. Occasionally, there is a development of superficial vessels at the limbus corresponding to the nearest approach of the disk to the corneal margin. I agree with Dr. Weeks that the etiology is unknown, and I am not willing to accept a neuropathic origin. Wagner reports a case occurring in a man 77 years of age. His conclusions are that disciform keratitis is characterized by a disklike part of strongly altered corneal tissue, lying deep; that it is caused by toxins produced by undiscovered micro-organisms existing in the epithelium. The finding of giant cells in the exudate in the anterior chamber of an inoculated animal is significant.

The differential diagnosis of disciform keratitis is of great interest and importance. The causes of this condition are numerous. Should we accept a tuberculous origin for this affection, could it not be explained in the same way as the cases of interstitial keratitis which we see develop in patients with inherited syphilis as the result of a trauma?

Dr. John Green, Jr., St. Louis: Keratitis disciformis has generally been regarded as a self-limited disease, practically uninfluenced by any form of treatment and terminating in more or less opacity, due to the formation of scar tissue. Posey, who in 1904 recorded the first American case, remarks that "therapeusis is unavailing." This view is shared by most textbook writers, who content themselves with offering such therapeutic suggestions as would presumably be of benefit in any chronic corneal inflammation.

In a case I reported in 1913 prompt improvement and a rapid cure followed repeated subconjunctival injections of a 2 per cent. saline solution, after the failure of classical methods.

Dr. Arthur G. Bennett, Buffalo: I have seen three cases of this type. The treatment that I applied to two of these cases was very satisfactory, after I had tried all the classical methods for five or six weeks without getting any improvement. Under cocain anesthesia, I flooded the eye with fluorescein, opened up the area of infiltration with a knife and then with a sliver of wood I cauterized the necrotic area thoroughly with phenol. I discharged that patient cured in a week.

A young man, who had been in the care of a very competent oculist in another city for three months, was sent to me with a diagnosis of tuberculosis. I employed the treatment mentioned at once, and with the same good result. The necrotic area is stained with fluorescein immediately you open into it so that the exact limits of this area are delineated. Cauterizing that area with phenol destroys absolutely every part of the infiltration. I was gratified at having a perfect recovery within a week; and that man was accepted in the Officers' Reserve Corps within a month, and is now serving with the Army.

Dr. Will Walter, Chicago: Improvement following the administration of tuberculin is not more than suggestive evidence of tuberculous infection. Observations are being made with increased frequency that antibody forming vaccines and neutralizing serums are more or less interactive. Antityphoid vaccine has occasionally cleared up staphylococcus infections, and antitoxic streptococcus serums have improved conditions due to other infections. Tuberculin often raises the white cell blood count. Sahli made this a diagnostic point in mild tuberculosis. I have employed staphylococcus vaccines in recurrent furunculosis, and with good effect, although often without raising the white cell count. In the few cases of ulcers of this type which I have observed and treated it has been used with this thought in mind and not with the idea that it was a tuberculous lesion, although it may be. The same therapy is employed as a routine in all forms of corneal ulcer whenever the white cell count is low.

It has always been used with measures which promote local resistance. Prominent among these are the high frequency current, with vacuum tubes, through the closed lids, and later the sinusoidal current; and last but not least heat, not as usually applied, but by the sanatorium method, which gives you a much greater degree of heat than by direct methods, and not persistently applied, but at intervals of two or three hours. The sinusoidal current is of value in this condition because its waves prevent scarring and stimulate the nerves to normal function. The results from this technic will surprise those who have not tried it. It certainly is very effective in shortening the duration of this disease, for my patients have not had the long period of suffering which the records tell us must be expected.

Dr. Edgar S. Thomson, New York: I have seen two cases of disciform keratitis—the first I have ever seen. I do not see how there can be any other cause for the condition other than a low grade infection. The whole appearance and characteristics of the condition are infective.

I treated a young man, otherwise in perfectly good health, for six weeks without the slightest benefit, when it occurred to me to destroy the infective material as Dr. Bennett described. I applied Shahan's thermaphore in this case, heated to 160 F., directly over the disciform spot, for one minute. He made a very rapid recovery. The eye began to whiten at once, the hypopyon absorbed, and he was out of the hospital in a week, the whole case having lasted a little over two months.

Another case was seen in consultation, and I did not have a chance to apply that treatment; but we have had very good success with the thermaphore in other cases of similar character.

Dr. F. Park Lewis, Buffalo: I agree with Dr. Bennett that disciform keratitis is much more common than we realize. There are two reasons why it has not been recognized; first, because attention has not been called to it as definitely as it should have been, so that it escapes observation; and second, because in all probability it is endogenous rather than exogenous in its infection. Dr. Blaauw reported a case before the Ophthalmic Club of Buffalo. It had the typical characteristics which have been outlined. The patient was a strong, rugged, well nourished man, who gave no other evidence of illness. However, his mouth was as insanitary as one could imagine it to be. There were evidences of pyorrhea and root abscesses. Great improvement followed the extraction of the infected teeth and the treatment of the pyorrhea.

I believe in the use of protein toxins. Dr. H. Gideon Wells, who is now working on the subject of protein toxins, told me that Dr. Kessler has for the first time succeeded in isolating a sufficient quantity of the histidins to make experimentation practicable.

They have reached the conclusion that all proteins give off very easily absorbable toxins, which produce a wide range of symptoms. When a case of disciform keratitis occurs, it is of great importance to search for a focal nidus of infection.

Dr. John M. Wheeler, New York: Two things impressed me very definitely in Dr. Weeks' case, which I saw first. There was an entire absence of symptoms, except for impairment of vision. Two days before I saw her this patient noticed that she did not see well with her right eye. There were absolutely no other symptoms. There was no pain or discomfort or photophobia to indicate that there was anything wrong with the eye. The eye was treated with atropin and hot baths, and in the first few days was apparently absolutely quiet, except for this round area of infiltration. Ethylmorphin hydrochlorid was suggested, and on the fourth day a drop of a 2 per cent. solution was instilled into the eye. The eye had been absolutely quiet up to this time. Within a few hours after the instillation there was an attack of acute glaucoma. It is impossible for me to dissociate the use of the drug in this case from the acute glaucoma.

Dr. Rudolph H. von Kotsch, Chicago: A few weeks ago a patient came to me who had been treated for two months by another doctor. He did not improve and became dissatisfied. Some friends suggested the use of argyrol; so he used that for four weeks, but the eye continued to grow worse. Then he was referred to me. I used the actual cautery, but very lightly. The following day the eye showed improvement. In about two weeks it cleared up entirely, and vision is now almost normal.

Dr. Jesse S. Wyler, Cincinnati: Is it not possible that some of the men who have discussed this paper have confused true keratitis disciformis with deep corneal abscess and centralized interstitial keratitis? I have seen only two cases of disciform keratitis in the European clinics, and as I remember them, there was no stippling of the cornea above the lesion. There were no synechiae and no hypopyon. I also agree with Dr. Walter in the action of tuberculin, considering it merely a means of increasing leukocytosis according to the paraspecific theory advocated by Darier.

Dr. John E. Weeks, New York: This is a microbic infection. The forms of treatment that have been successful in these cases point to the destruction of a causative agent, apparently a micro-organism. In regard to the possible endogenous nature of the infection, I do not think that theory is sound. In the cases which I have observed the disturbance is primarily a superficial one, never a deeply seated one, which it would be if it were metastatic. Secondly, it is advisable to

give patients with disciform keratitis diagnostic tuberculin injections and see if a local reaction is produced. The result will aid us to determine whether this affection is or is not due to infection with tubercle bacilli. Hypopyon and deep ulceration are extremely uncommon, and when they occur must be due to added infection by some other micro-organism.

THE EFFECT ON THE KIDNEY OF URETEROVESICAL ANASTOMOSIS

EXPERIMENTAL AND CLINICAL REPORT *

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Baker, in 1878, reported a successful implantation of the left ureter into the bladder by operation through the vagina, for the relief of incontinence due to the opening of the ureter into the anterior wall of the vagina. In 1889, McArthur reported a similar case, in which he operated successfully. Davenport, in 1890, implanted an anomalous ureter by the vaginal route, with good results. In 1894, Bazy reported two instances of ureterovaginal fistula. One patient had an infected hydronephrosis which improved after the implantation of the ureter. Bazy tied a small catheter into the implanted ureter and suggested the use of pelvic lavage with silver nitrate solution, 1:500 to 1:100, for infection of the kidney. He also mentions two cases of ureterovesical implantation performed by Novaro in 1892. Franz, in 1907, published a report of nine experiments on dogs, with excellent results following ureterovesical implantation; also seventeen clinical cases in which four patients were cystoscoped, and the implanted ureter functioned normally. Krönig, in the same year (1907), reported the cases of nine patients operated on for ureteral fistula, following hysterectomy for cancer. His assistant, Dr. Rauscher, cystoscoped these patients from five months to one and one-fourth years after the implantation. Good function of the kidney was found in five cases; two showed stenosis and slight hydronephrosis. In two cases of bilateral implantation there was hydronephrosis on the left side and good function on the right side in one, and normal function on both sides in the other.

Fig. 1.—Coffey technic employed for implanting the ureter into the bladder; serous and muscular coat split and undermined for embedding of the ureter; (inset) split ureter pulled within the cavity of the bladder through the stab wound in the lower angle of the incision.

TYPES OF TECHNIC

Coffey, in 1911, published a technic for implanting the ureter or the common duct into the intestine. This consists of splitting the serous and muscular coats for three fourths of an inch and entering the lumen of the bowel through a small stab wound in the mucosa. The ureter is pulled well into the lumen by means of an anchoring suture placed through the split end of the ureter, and tied three fourths of an inch below its entrance. The serous and muscular layers are then approximated around the ureter, and one stay suture is placed one-fourth inch above the site of the anastomosis (Figs. 1 and 2).

Stiles' technic consists of entering the lumen of the bowel through a stab wound, and approximating the intestinal wall, without further dissection over the ureter. The wall of the ureter is also caught in these sutures. He omits the splitting of the ureter on one side, as well as the stay suture. These methods have been used with slight modifications in our work for implantation into the bladder (Figs. 3 and 4).

Furniss has recently published a simple method of ureterovesical anastomosis, consisting of the penetration of a double fold of the bladder wall with an artery forceps, and of the pulling of the severed ureter through both openings made by the forceps. The ureter is secured to the bladder wall by a few interrupted sutures at its lower entrance into the bladder, and the end is permitted to hang free in the cavity of the bladder. The anterior opening is then closed (Figs. 5 and 6).

A technic suggested by Mann of the Mayo Clinic, a report of which has not heretofore been published, has been used in a few of our experiments. Two parallel incisions, one-fourth inch in length and one-half inch apart, are made at right angles to the long axis of the bladder, extending down to the mucosa. This seromuscular bridge is undermined, leaving the mucosa intact. A small stab wound is made through the mucosa at the site of the lower transverse incision. The severed ureter, having been split for one-fourth inch on its anterior surface and armed with No. 00 catgut, is pulled beneath the bridge from above downward and anchored to the inner surface of the wall of the bladder one-half inch below the opening. One or two interrupted sutures are made on each side of the ureter, approximating the transverse incision up to the ureter. No suture is placed into the ureter except the one put through the flap, for the purpose of securing it to the inner side of the wall of the bladder (Figs. 7 and 8).

In making the experimental and clinical observations described in this paper, it has been my purpose to evolve a technic for the reimplantation of the ureter into the bladder, and to study the effect of such operation on the kidney and ureter. Unilateral implantations

* From the Mayo Clinic.
* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article will appear in the Transactions of the Section and in the author's reprints.

were performed on eighteen dogs and bilateral implantations on three, giving a total of twenty-four observations.

Coffey's technic was used in eight cases. Observations of the end-results were made from one day to five and one-third months after operation. One animal died from peritonitis on the sixth day. The kidney

Fig. 2.—Coffey technic completed with bladder everted out of the abdomen.

showed slight hydronephrosis. It was possible to make the ureter leak at the site of anastomosis (Case 1). One death occurred at the end of twenty-four hours. Both ureter and pelvis were dilated, and miliary abscesses were found throughout the kidney. There was also a small localized abscess at the site of the implantation (Case 6). A third animal died from distemper on the tenth day. The pelvis and the ureter both showed a slight hydronephrosis (Case 8). Five animals were examined from three weeks to five and one-third months after operation, and showed an entirely normal kidney and ureter. Two observations on the technic were made:

1. In all instances the ureter was implanted on the posterior wall of the bladder a short distance toward the median line of the original insertion, with the bladder pulled well out of the pelvic cavity. It is convenient and natural to embed the ureter from below upward, but when this is done and the bladder is replaced into the pelvis, an acute angulation in the ureter occurs just at the site of the union with the bladder. If the implantation is reversed, that is, from above downward, the ureter will lie in a line with its entrance through the wall of the bladder. In order to have the open side of the ureter facing into the cavity of the bladder, the splitting of the ureter must be done in its anterior wall (Fig. 9).

2. After some observation the last stay suture, placed about one-fourth inch above the site of implantation, was omitted, as the implantation is performed with the bladder empty and in a state of acute contraction. When this viscus becomes distended a great disproportion occurs between this included section of the ureter and portion of the bladder, and the ureter may be acutely kinked and even pulled out of the wall of the bladder, as occurred in one of the cases (Case 11, Fig. 10).

Stiles' technic was carried out in eight cases, with the modification of splitting the anterior aspect of the wall of the ureter for about one-fourth inch. No suture, except the anchoring suture, was permitted to enter the wall of the ureter. Care was taken to avoid any injury to the proximal end of the severed ureter, and no forceps was placed over the end. A forceps was placed on the side of the bladder and the ureter cut with a thin scalpel about 1 cm. above this clamp. While the sutures infolding the ureter in the wall of the bladder were being tied, a thyroid needle was used as a seeker in order to avoid any undue compression on the anastomosis (Fig. 4). There were six complete successes in this group of eight operations. In one case (Case 11) the ureter pulled out of the bladder. Here the additional stay suture had been used. One animal, sacrificed in a physiologic experiment one and one-third months after operation, showed an advanced pyonephrosis (Experiment 12, Fig. 17).

Five operations were done with the technic devised by Mann. Hydronephrosis resulted in one case four months after the operation. In four cases the kidneys and ureters were normal.

Three implantations were done by the method of Furniss, with normal results. One was a bilateral implantation done at one stage. The placing of a clamp over the proximal end of the ureter was, however, omitted. The small amount of urine leaking from the ureter in such cases will cause no disturbance unless there is previous infection of the kidney, and then a moist pack placed around the ureter will take care of the trouble.

In order to work out the technic, a cystoscopic examination was made under anesthesia in four normal female dogs and in four dogs whose ureters had been implanted. With the animal in the dorsal position, a small speculum was introduced into the vagina and sufficient traction exerted on the labia to bring the urinary meatus into view from its normal location behind the pubic arch. The cystoscope was then quite readily introduced. The ureters were catheterized with No. 4 or No. 5 ureteral catheters in the normal animals. There was obstruction to the catheter in two of the implanted cases; in two others no obstruction occurred.

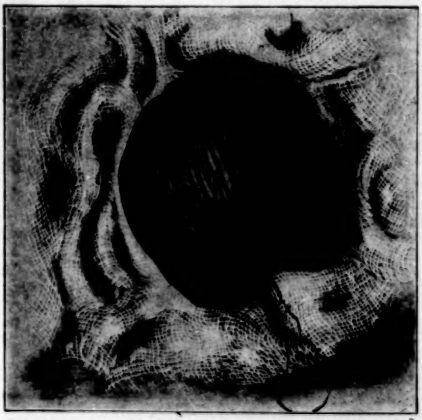

Fig. 3.—Stab wound through which the ureter is pulled within the cavity of the bladder.

In the review of the results of the twenty-four experiments, it was found that there were entirely normal kidneys and ureters in fifteen instances, slight hydronephrosis in two, marked hydronephrosis in one, miliary abscesses of the kidney in one, pyonephrosis in one, normal kidney and hypertrophied ureter in two,

and the ureter pulled out in two (Tables 1 and 2). Fifteen implantations (62.5 per cent.) were complete successes. Normally functionating kidneys, including two cases with a slight hydronephrosis, were found in nineteen (80 per cent.). There was complete failure from stenosis, infection and the pulling out of ureters in five cases (20 per cent.).

Fig. 4.—Enfolding of the wall of the bladder over the ureter, a seeker being used to avoid compression.

Early in these experiments, fine silk was used for suture material, and in several instances concretions formed around the sutures in the bladder. This did not occur when catgut alone was used.

It is of interest to note that in two cases (Cases 19 and 21) the kidneys were entirely normal, the ureter was hypertrophied and there was no evidence of dilatation. Partial stenosis takes place at the site of the implantation and the muscularis of the ureter undergoes compensatory hypertrophy, consequently dilatation of the pelvis does not occur until this compensation is overbalanced.

TABLE 2.—SUMMARY OF DOG CASES

Number of dogs used in experiment	21
Number of ureters transplanted	34
Coffey's technic of transplantation	8
Stiles' technic of transplantation	8
Mann's technic of transplantation	5
Furniss' technic of transplantation	3
Number of dogs cystoscoped	4
Obstruction to ureteral catheter	2
No obstruction to ureteral catheter	2
Death from peritonitis	1
Death from pulling out of ureter	2
Death from ascending kidney infection	1
Death from distemper	2
Killed in fight	1
Sacrificed in physiologic experiments	6
Nephro-ureterectomy	7
Exploratory operation for result	1
Time elapsing between operation and study of result	1 day to 2½ mo.
Normal kidney and ureter	15
Slight hydronephrosis	2
Marked hydronephrosis	1
Pyonephrosis	1
Miliary abscess in kidney	1
Normal kidney and hypertrophy of ureter	2
Normally functionating kidneys including two with slight hydronephrosis (80%)	19
Failure from obstruction	1
Failures from infection (20%)	2
Ureter pulled out	2
Complete successes (62.5%)	15

Slight dilatation of the pelvis and ureter was found in two cases (Cases 1 and 8), six and ten days respectively after implantation. This was probably owing to edema of the lower end of the ureter and of the wall of the bladder caused by trauma, which subsided in a short time. The utmost care should be taken to minimize trauma during the operation.

In view of the end-results and the simplicity of the operation, the modification of Stiles' technic seems the most suitable in ureterovesical anastomosis. The successful outcome of ureterovesical implantation depends entirely on the technic. This consists of: (1) rigid asepsis to prevent peritonitis and ascending renal infection, (2) a suitable mechanical scheme to establish waterproof anastomosis without causing compression of the ureter, (3) the avoidance of any suture that will enter the wall or lumen of the ureter other than the anchoring suture at its end, and (4) the avoidance of placing any clamp whatever across the extremity of the ureter used in the anastomosis.

CLINICAL REPORT

In twenty-one cases in the Mayo Clinic, the ureter has been implanted into the bladder and the effect on the kidney has been noted. Fifteen patients had extensive resections for tumor of the bladder, and implantation of one ureter; four had ureterovaginal fistula; in one the right ureter opened into the urethra, and in one the left ureter opened into a diverticulum.

TABLE 4.—SUMMARY OF RESULTS OF TRANSPLANTATIONS

Number of cases cystoscoped following transplantation	17
Length of time elapsing between transplantation and cystoscopic examination	18 days to 4½ years
Dilated meatus	9 (54%)
Meatus not seen	4 (23%)
Meatus normal	3 (18%)
Meatus contracted	1 (6%)
Contraction of transplanted meatus	7 (41%)
No obstruction to ureteral catheter	8 (47%)
Obstruction to catheter noted	3 (18%)
Infection of specimen from few pus cells to cloudy urine noted	6 (35%)
Normal function, phenolsulphonephthalein and normal pyelogram	5 (30%)
Small hydronephrosis; fair function	3 (18%)
Normal excretion of phenolsulphonephthalein	4 (23%)
Functionless kidney	5 (30%)
Dilatation of ureter noted at operation—Cases 10 and 16	2 (12%)
Ureter dissected from dense scar tissue—Cases 5, 12 and 15	3 (18%)
Kidneys showing normal function, 55%; fair function, 18%; functionless, 30%.	
Deducting Cases 5, 10, 12, 15 and 16 = normal kidneys, 75%; fair functionating kidneys, 25%.	

The patients who were operated on for malignancy and returned for examination have been longest under observation, three for four years and eight for from three months to one year. When implantation was done for conditions other than tumor of the bladder the time elapsing between the operation and the cystoscopic examination varied from eighteen days to four months. The cystoscopic examination consisted of a

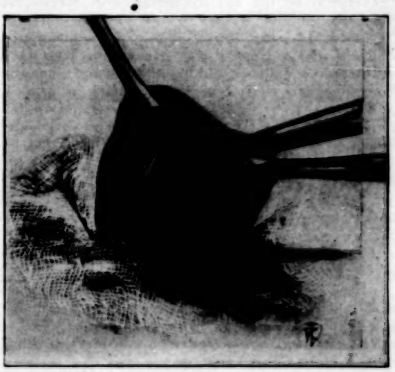

Fig. 5.—The Furniss technic for the implantation of the ureter into the bladder.

careful inspection of the entire bladder. The condition of the implanted meatus as to size and contractions and the appearance of the excretion were noted. Whenever feasible, both ureters were catheterized and a differential functional test with phenolsulphonephthalein was done, followed with a pyelogram of the implanted side. In the cases in which the implanted

Fig. 6.—The end of the ureter lies free within the cavity of the bladder.

ureter could not be catheterized, a Garceau catheter was passed well up on the normal side, urine from the bladder was taken from the implanted side and a differential test made. When neither side was catheterized, indigocarmin was given intravenously, and the time of its appearance and the intensity of the color as it appeared at the meatus were noted (Tables 3 and 4).

Four patients died following resection of carcinoma of the bladder and implantation of one ureter. At necropsy, the cause of death and the result of the implantation were shown (Table 5).

Seventeen of the twenty-one patients were cystoscoped from eighteen days to four and one-half years after operation. The normal output of phenolsulphonephthalein and a normal pyelogram were obtained in five instances (30 per cent.); the normal phenolsulphonephthalein excretion was obtained in four (23 per cent.), and there was a small hydronephrosis with fair function in three (18 per cent.). Functionless kidneys were found in five instances (30 per cent.). In a review of the histories in the cases of functionless kidneys, two conditions are noted:

1. Marked dilatation of the ureter at the time of the implantation, due to the growth overlying the meatus and causing gradual obstruction in one case (Case 10). In one case (Case 16), in which the right ureter opened into the urethra, there was a dilated ureter.

2. Because of the necessity of resecting a portion of the ureter involved in the malignant growths, where there was very dense scar tissue in ureteral fistulas, the implantation was performed with considerable tension on the ureter (Cases 12 and 15).

In nine cases (53 per cent.) of the seventeen patients, the function of the kidney was entirely normal. There was fair function in three cases (18 per cent.), and functionless kidneys in five cases (30 per cent.). If we deduct those cases in which marked dilatation was noted at the time of operation, and in which the ureters were implanted under tension, normal kidney function occurred in 75 per cent. and fair function in 25 per cent.

Of the four patients who died from the fourth day to the second month after the operation, two showed slight dilatation on the implanted side; in one the pelvis was dilated to three times the normal size, and in one there was no evidence of obstruction.

In view of the fact that functionless kidneys result when the implantations are done with widely dilated ureters, and when it is necessary to put the ureter on tension in order to accomplish the anastomosis, in such cases ligation of the ureter is preferable to implantation.

If, on cystoscopic examination, a tumor of the bladder, which appears malignant, is found overlying one or the other meatus, or in close proximity to it, the opposite ureter should be catheterized to ascertain the functional capacity of the kidney. If, at the time of the operation, a widely dilated ureter is found, or if tension is necessary, the surgeon has definite information regarding the ability of the opposite kidney to carry on the urinary elimination. If, on account of hematuria, spasm of the bladder, spasm or anatomic obstruction, the opposite ureter cannot be catheterized, a combined phenolsulphonephthalein test should be done. If the combined output is normal, or nearly normal, and a widely dilated ureter is found, it is safe to assume that the normal phenolsulphonephthalein output is from the opposite side, and ligation of the ureter may be safely done.

In all cases in which advanced pathologic changes of the kidney and ureter have not occurred prior to surgical relief, and in which tension can be avoided,

Fig. 7.—Mann's technic for implanting the ureter into the bladder. A seromuscular bridge is undermined and the ureter is pulled beneath this bridge from above downward.

the reimplantation of the ureter into the bladder should be done.

CONCLUSIONS

1. From experimental and clinical observations, it is obvious that a normal or almost normal kidney and ureter should result following the implantation of the ureter into the bladder.

2. The utmost care to minimize the operative trauma must be observed.

3. The placing of a forceps over the end of the uterer should be avoided.

4. No suture should enter the wall or lumen of the uterer other than the anchoring suture placed in the split extremity of the ureter; and the approximation

Fig. 8.—Mann's technic of implantation completed, showing the bladder empty and pulled well out of the abdomen.

of the wall of the bladder must be accomplished without undue compression.

5. When marked dilatation of the ureter has occurred prior to surgical interference, and when it is necessary to implant the ureter under tension, a successful result is very doubtful and ligation is preferable to any effort of implantation.

REPORT OF CASES

CASE 1 (No. 80914).—A woman, aged 40, was admitted to the clinic, March 4, 1913. A diagnosis was made of a broad, flat carcinoma extending over the base of the bladder and into the urethra. Aug. 6, 1913, excision and cautery of the base of the tumor and implantation of the right ureter was done. The patient returned each year for cystoscopic examination. There was no recurrence except a persistent caruncle of the urethra, which was cauterized. Microscopic examination showed it to be inflammatory. Oct. 26, 1917, four and one-fourth years after the resection of the growth, the left ureter was catheterized. The differential functional phenolsulphonephthalein test showed 15 per cent. from the ureter, and 17.5 per cent. from the bladder specimen in fifteen minutes after intravenous injection. Nov. 30, 1917, the right ureter was catheterized easily, and clear urine flowed normally through the catheter. A pyelogram made on this date showed no dilatation of the pelvis (Fig. 23). The patient is in good general condition.

CASE 2 (No. 86197).—A woman, aged 50, was admitted to the clinic, June 18, 1913. A diagnosis of malignant papilloma of the base of the bladder was made. June 25, 1913, suprapubic resection of the right quadrant and floor of the bladder with implantation of the right ureter was done. Cystoscopic examination in 1914, 1915, 1916, and 1917 showed no evidence of recurrence. Feb. 8, 1918, four years and seven and one-half months after the removal of the tumor, a dilated right meatus was found. The catheter could not be passed up the ureter. The left ureter was catheterized with a Garceau catheter. The intravenous phenolsulphonephthalein test showed 20 per cent. in the ureter, and 15 per cent. in the bladder in fifteen minutes. The patient's general health is good.

CASE 3 (No. 100111).—A man, aged 53, was admitted to the clinic, Feb. 4, 1914. A suprapubic resection of a tumor of the bladder had been done elsewhere, about six months previous to admission. A recurring tumor of the bladder was found, and, Feb. 7, 1914, resection and cautery of one half of the bladder with implantation of the right ureter was done. Nov. 5, 1914, cautery of the bladder for recurrence was again necessary. Cystoscopic examinations in 1915, 1916 and 1917 showed a small recurring growth at the site of the operation scar, which was fulgurated. Examination, December 4, 1917, showed a small reddened area in the old scar but no evidence of recurrence. The right ureter opening was widely dilated, and frequent spurts of urine came from the meatus. The secretion from the right ureter showed a few pus cells. The phenolsulphonephthalein test showed 4 per cent. in the right ureter, and 5 per cent. in the left in fifteen minutes. A pyelogram of the right kidney showed a small hydronephrosis. The patient is now in excellent health (Fig. 24).

CASE 4 (No. 163712).—A man, aged 69, was admitted to the clinic, June 23, 1916. A diagnosis was made of a papilloma of the bladder the size of a hen's egg, lying in the right base. July 11, 1916, excision of the tumor and implantation of the right ureter was done. Papillary epithelioma was diagnosed pathologically. A cystoscopic examination, Oct. 27, 1917, one year and three and one-half months after operation showed no recurrence. The catheter passed easily up the right ureter and negative urine was collected. Phenolsulphonephthalein output showed 15 per cent. in the right ureter, and 17.5 per cent, in the bladder. The pyelogram showed the right kidney to be normal. The general condition of the patient was good (Fig. 25).

CASE 5 (No. 185582).—A woman, aged 60, was admitted to the clinic, Feb. 13, 1917, and a diagnosis of carcinoma of the bladder was made. March 21, 1917, a suprapubic excision of one third of the wall of the bladder was done. One inch of the right ureter was removed and the left ureter was implanted into the base of the bladder. It was not possible satisfactorily to reconstruct the bladder. The involved portion of the urethra was removed also. Jan. 22, 1918, ten months after the operation, there was no evidence of recurrence of the tumor. The left meatus could not be seen; the right was normal. A catheter was passed well up the right ureter. The phenolsulphonephthalein output showed 12 per cent. in the right ureter, and a trace in the bladder in fifteen minutes. The left kidney was found to be functionless probably because of the tension on the ureter necessary for its implantation.

CASE 6 (No. 69825).—A man, aged 54, was admitted to the clinic, June 27, 1912. A carcinoma of the left base and wall of the bladder was found. July 6, 1912, suprapubic resection of one third of the bladder with cautery of the base, and implantation of the left ureter was done. Cystoscopic examination, March 8, 1913, showed no evidence of recurrence. The left meatus spurted urine normally. In answer to an inquiry in August, 1916, the patient stated that he was in good health and had no urinary inconvenience.

Fig. 9.—Preparation of the ureter for implantation into the bladder. Anterior wall split from one-fourth to one-half inch and anchoring sutures introduced.

CASE 7 (No. 186610).—A man, aged 54, was admitted to the clinic, Feb. 23, 1917. March 9, 1917, a suprapubic resection of one third of the left wall of the bladder and one-half inch of the left ureter, with implantation of the ureter was done for carcinoma. Oct. 18, 1917, cystoscopic examination showed no recurrence. The left meatus was widely open and spurted urine normally. A catheter passed easily and the specimen of urine showed a few pus cells. Intravenous phenolsul-

phonephthalein appeared in four minutes, from the left ureter 4 per cent. and from the bladder 20 per cent. The catheter drained poorly. The pyelogram showed a normal kidney and ureter (Fig. 26). The patient's health is good.

Case 8 (No. 213632).—A man, aged 48, was admitted to the clinic, Nov. 20, 1917. A suprapubic excision with cautery was done at the base of the left wall of the bladder, and base of the left ureter for multiple papilloma. One large growth of the size of an orange was situated at the left meatus. Cystoscopic examination four months and twenty-two days after the operation showed no evidence of recurrence. The left meatus, which was located high up on the left wall of the bladder, was catheterized easily. Indigocarmin, dark blue in color, appeared in five minutes on both sides. The pyeloureterogram showed a normal pelvis and ureter throughout. Examination of urine from the left kidney was negative (Fig. 27). The patient has gained 8 pounds in weight and has no urinary inconvenience.

Case 9 (No. 213837.—A man, aged 42, was admitted to the clinic, Nov. 11, 1917. A diagnosis of a large tumor of the bladder and marked secondary anemia was made. The hemoglobin was 37 per cent. A transfusion of 500 c.c. of blood was given eleven days before operation. Nov. 24, 1917, a suprapubic resection of the left one third of the bladder, extending the dissection close to the right ureter, was done. The left ureter was implanted and a small rubber catheter was inserted into it for a short distance, and brought out through the suprapubic wound. March 22, 1918, four months after the operation, the patient returned for cystoscopic observation. There was no recurrence. The capacity of the bladder was 4 ounces. The left ureter had probably been implanted in the dome. It was gaping, and no excretion was seen. A catheter could not be passed. The right meatus, which was normal, was catheterized. Phenolsulphonephthalein showed 25 per cent. in the right ureter, and 2 per cent. in the bladder in fifteen minutes. The left kidney was functionless. The patient's general condition was much better. The hemoglobin was 58 per cent.

Fig. 10.—Showing tension of the stay suture when the bladder is distended.

Case 10 (No. 213710).—A man, aged 59, was admitted to the clinic, Nov. 13, 1917. November 24, resection of one third of the bladder, right wall and base, including two-thirds of an inch of the right ureter, with implantation of the right ureter was done. A small catheter was passed four inches up into the implanted ureter. The ureter was dilated considerably, apparently from obstruction, the result of the growth. Cystoscopic examination March 21, 1918, nearly four months after the resection, showed no recurrence. The right meatus was gaping. Contractions were absent and the left meatus was normal. Indigocarmin injected intravenously appeared from the left side in three minutes, dark blue in color. None was seen from the right meatus in fifteen minutes. The catheter could not be passed up the implanted ureter. The right kidney was functionless.

Case 11 (No. 204790).—A woman, aged 56, was admitted to the clinic, Aug. 15, 1917. The patient had complained of frequency of urination and hematuria for two months. Aug. 22, 1917, a suprapubic resection of one half the bladder and part of the vaginal wall with implantation of the left ureter was done. A diagnosis of epithelioma was made pathologically. Nov. 24, 1917, three months after the operation, there was no recurrence. The left meatus was not seen because of the deformity of the bladder. A Garceau catheter was passed into the right ureter. The phenolsulphonephthalein test showed 12.5 per cent. in the right ureter, and 17.5 per cent. in the bladder in fifteen minutes. The patient's general health is much improved.

Case 12 (No. 221950).—A woman, aged 33, was admitted to the clinic, Feb. 14, 1918. Following vaginal drainage for pelvic abscess, three years prior to admission, the patient developed incontinence. A left ureterovaginal fistula was found. Feb. 26, 1918, the lower eight inches of the left ureter was dissected out of very dense scar tissue and was reimplanted under tension. A small catheter was introduced into the implanted ureter and brought out through the urethra. A cystoscopic examination a month later showed granulation tissue in the left dome. No spurts of urine were seen from the left side. A Garceau catheter was passed into the right ureter, and the differential functional test showed 20 per cent. in the right ureter, and none in the bladder. The left kidney was functionless because of cicatricial contraction at the lower end of the left ureter.

Case 13 (No. 214196).—A woman, aged 23, was admitted to the clinic, Nov. 17, 1917. Following instrumental delivery fourteen months previously, the patient had developed incontinence. A diagnosis of left ureterovaginal fistula and right uretero-uterine fistula was made. The left ureter was implanted, Dec. 3, 1917, and the right was implanted, Dec. 22, 1917. A cystoscopic examination seven weeks after the first operation showed the left meatus to be normal. Indigocarmin appeared in five minutes, dark blue in color. A No. 6 catheter was passed easily. The pyelogram showed normal outline. A specimen of the urine contained a large number of pus cells. Inflammatory reaction obscured the right meatus. There was a small uretero-abdominal postoperative fistula on the right (Fig. 28).

Case 14 (No. 102891).—A woman, aged 41, was admitted to the clinic, March 24, 1914. The patient had developed a left ureterovaginal fistula following operation for cancer of the uterus five months previously. An implantation of the left ureter was done, April 7, 1914. Eighteen days later, a ureteral catheter was passed easily, and cloudy urine, showing numerous pus cells, flowed rapidly for twenty minutes. Two ounces of urine were withdrawn, the specific gravity being 1.001. Before implantation could be accomplished, the lower end of the ureter had to be dissected out of dense scar tissue.

Case 15 (No. 144658).—A woman, aged 42, was admitted to the clinic, Oct. 30, 1915. The patient had developed a right ureterovaginal fistula following hysterectomy done at the clinic. March 15, 1916, the right ureter was dissected free from the scar tissue and implanted into the bladder. A cystoscopic examination twenty days after the operation showed the end of the right ureter protruding into the bladder. It was not possible to catheterize on account of the obstruction. The left kidney was catheterized, and the differential functional test showed 13 per cent. in the left ureter, and 2 per cent. in the bladder in thirty minutes.

Case 16 (No. 163923).—A woman, aged 21, was admitted to the clinic, June 27, 1916. The patient had suffered from incontinence since childhood. The right ureter was found opening into the urethra. Implantation of a widely dilated right ureter was done, April 25, 1917. The cystoscopic examination four months later showed an infected hydronephrosis con-

taining more than 2 ounces of cloudy urine. The phenolsulphonephthalein output showed 15 per cent. in the right ureter and 30 per cent. in the bladder in fifteen minutes.

CASE 17 (No. 213976).—A man, aged 32, was admitted to the clinic, Dec. 7, 1917. An operation for diverticulum of the bladder was done, Feb. 26, 1918. The left ureter was found opening into this pouch and was transplanted. On cystoscopic examination six weeks later, it was impossible to get a satisfactory view of the transplanted meatus. A No. 6 catheter was passed into the right ureter and a differential functional test done which showed 25 per cent. from the right ureter, and 12 per cent. from the bladder.

CASE 18 (No. 210877).—A man, aged 54, was admitted to the clinic, Oct. 15, 1917. Nov. 16, 1917, a suprapubic resection of one half of the bladder with implantation of the left ureter was done for cancer. The patient died in the hospital on the fourth day after the operation. Necropsy showed advanced myocardial changes and pulmonary edema. There were multiple small cortical abscesses in the left kidney and a slight hydronephrosis. The ureter was contracted at the site of the anastomosis and was dilated above this point (Fig. 29).

CASE 19 (No. 218877).—A man, aged 60, was admitted to the clinic, Jan. 12, 1918. Jan. 19, 1918, a suprapubic resection of the bladder and one and one-half inches of the right ureter, with reimplantation into the dome of the remaining portion of the bladder, was done for extensive cancer. A small catheter was passed into the implanted ureter and brought out through the suprapubic wound. The patient died on the twelfth day from bilateral pulmonary emboli. There was no obstruction at the site of implantation. Both kidneys showed arteriosclerotic changes with slight dilatation of the right kidney pelvis (Fig. 30).

CASE 20 (No 101710).—A man, aged 45, was admitted to the clinic, Mar. 11, 1914. A part of the right wall and base of the bladder was excised, Dec. 14, 1917, with implantation of the right ureter into the base, for early epithelioma of the bladder. A small catheter was passed into the implanted ureter. The convalescence was uneventful for one month, when abdominal distention and coma developed, and the patient died. Necropsy showed a general peritonitis, with firm union of the implanted ureter and an old perivesical hematoma near the site of implantation (Fig 31).

CASE 21 (No. 219087).—A man, aged 40, was admitted to the clinic, Jan. 14, 1918. Jan. 22, 1918, a resection of the base and the right one half of the bladder, with transplantation of the right ureter into the dome was done for extensive cancer. The ureter was dilated to the size of a finger. A catheter was passed into the ureter. The cancer had extended into the perivesical fat. The patient died two months after the operation. Necropsy showed a large bilateral psoas abscess, extensive metastasis to the liver, and carcinomatous extension into the perivesical area with marked sloughing of tissues. The site of anastomosis could not be made out, on account of the necrosis of the bladder, and the surrounding infiltration. There was marked bilateral dilatation of the ureters and kidneys (Fig. 32).

ABSTRACT OF DISCUSSION

DR. V. D. LESPINASSE, Chicago: The specimen that interested me most was the one which showed a dilatation of the ureter without dilatation of the kidney pelvis. In my work with dilatation of the ureter for the removal of stone, we found that when the ureter is obstructed a dilatation begins at that point and travels toward the kidney pelvis. These specimens show this phenomenon beautifully, and one in particular with a slight cicatricial contraction and consequent partial obstruction shows the dilatation progressing up to the kidney. The dilatation had just started to involve the kidney when the animal was sacrificed.

DR. ARTHUR L. CHUTE, Boston: I would like to call attention to two things. One is a sort of rough and ready method of replanting or transplanting the ureter which I have used in quite a number of dogs. I introduce from below in either a man or a woman a long uro-catheter of size 12, making a little hole in the bladder anywhere that I can do it, and after I have slipped the ureter up 3 or 4 c.c., I then push the whole thing back into the bladder, and insert one or two stay sutures wherever I can get them. While it is not a very attractive technic it brings the result. I have not had any opportunity of catheterizing human ureters in that way, but on dogs it seems to be a very feasible method. At the same time, with a retention catheter you keep the bladder open and prevent the possibility of pulling out, while it does not add very much to the extent of the operation.

DR. CHARLES M. MCKENNA, Chicago: I can see from Dr. Peterson's slides that surgical repair is the important point which he intended to bring out. Too much cannot be said about surgical repair, either in genito-urinary surgery, or in general surgery. I do not quite understand why Dr. Peterson makes a second incision in the bladder to do the transplant. I should like to ask Dr. Peterson why it is not a good plan to transplant the ureter in the upper angle of the original incision. There will be less scar tissue to deal with there than there will by making a new opening, and less danger of infection since you have only one incision. I have used this latter method in my own cases and am satisfied with the result.

DR. BERNARD ERDMAN, Indianapolis: What method of transplantation was used in the case of the bladder with one ureter, and one ureter transplanted into the bowel?

DR. ANDERS PETERSON: The Coffey technic was used for the bowel implantation and the Stiles technic for the implantation into the bladder.

DR. F. C. HERRICK, Cleveland: I think in the anastomoses which possibly may be in question, and also in preventing possible stricture from the swelling, a catheter is of very great value to be left in for from five to eight days—possibly seven days—and then bring it out. It comes out very readily, of course. Some use a solid bougie.

DR. ANDERS PETERSON, Rochester, Minn.: Dr. Chute has repeatedly placed in the ureters a small rubber catheter large enough to completely fill the ureter. It is brought out through the suprapubic wound that is used as drainage after the section, and drains the urine quite freely. We believe it is a good thing to do; but in animal experiments, of course, it is not feasible, and it does not seem to be necessary, since results may be obtained by careful methods of suturing. In man there is danger of stricture.

In answer to Dr. McKenna's question in regard to making the anastomosis in the upper angle of the incision. This can, and very often has been done. In operating on the bladder large resections have to be made. The method used is not of such great importance, but all efforts must be made not to damage the upper section of the ureter which you are going to use. The ureter does not stand manipulation. If that is borne in mind, I believe results may be obtained without catheters.

Pellagra.—Figures covering the death rate for pellagra in the United States among the policy holders of the Metropolitan Life Insurance Company showed a gratifying decrease during 1916. In 1911, according to a bulletin issued by the company, there were 277 deaths among its policyholders from pellagra; in 1915 the number had increased to 650, and the rate had increased from 3.6 per hundred thousand exposed persons to 6.7. In 1916 the deaths fell to 368, and the rate to 3.6 as in 1911, a drop of 46 per cent. in 1916 as compared with 1915. This drop was observed in many districts of the South where the company does business. It is suggested that the drop in the death rate from this disease coinciding with the greater prosperity of the agricultural portion of the South during the high prices incident to the war in a way confirms the tentative conclusion of some of the government experts that pellagra is a "deficiency" disease induced by insufficient, poorly balanced dietaries rather than an infectious disease. The statistics of the company further show that the disease is more prevalent among the colored than the white people, and more frequent in women than in men. It is also indicated that the incidence of the disease increases with age.

THE END-RESULTS OF OPERATIONS FOR CANCER OF THE RECTUM

WITH SUGGESTIONS FOR IMPROVING THEM *

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CHICAGO

The sole plan at present which offers any hope of cure of cancer, though often only temporary, is the knife.

Radium is of little avail in columnar-celled growths, that variety of malignant disease which principally affects the lower bowel. Morson[1] states that while we may expect retardation of the neoplasm and relief of pain, irradiation is often followed by fibrous stricture, especially if the exposure has been for more than twenty hours, and he strongly advocates colostomy before treatment with radium is carried out.

In 1913, 1914 and 1915, of fifty-one patients treated at the Radium Institute,[2] London, thirty-three improved, ten did not, and eight died; while fourteen more abandoned treatment, probably on account of not obtaining any relief. The latest results were not very brilliant either. In 1917, they "were not constant or uniform, but in some instances growths regarded as inoperable were so much improved . . . that they were removed and the patients remained free from recurrence. This, however, has not frequently happened, and in the majority of cases the most that can be hoped for is healing of ulceration, diminution of the rate of growing, checking of the hemorrhage and postponement of the date at which colostomy becomes imperative." In fairness, though, it must be stated that it is a rigid rule there to treat inoperable cases only, or cases in which the patients absolutely refuse intervention.

At the Manchester Radium Institute, Burrows and Luyton[3] also found: "The improvement in cancer of the rectum was merely temporary."

On the other hand, Janeway[4] states that both the anal as well as the rectal carcinomas, especially the latter, have shown a marked susceptibility to radioactivity. This statement is based on very insufficient evidence, it seems to me, for of thirty-four patients treated, two at the time of report showed no evidence of the disease, fourteen were improved and eighteen were unimproved.

Fig. 1.—Photograph of specimen removed by author. Cancer mass in anorectal region. Circular dot shows metastatic lymph node 10½ inches above anus.

OPERABLE AND INOPERABLE CASES, AND MORTALITY

The operative mortality is high. As a rule, when patients are first seen, the disease is so far advanced that extensive dissections are necessary. Hence there is considerable shock. Another important factor is sepsis; and Mayo places it at 39.8 per cent. Mummery[5] of London, however, believes that with careful technic this should be avoided, and states he lost but one case in the previous three years, though but a year or so before he gave as his opinion that 90 per cent. of deaths following excision of the rectum "are due directly or indirectly to sepsis."

Hartmann[6] collected for the "low" operation (that is, the perineal and sacral methods) statistics from seventeen clinics besides his own, a total of 1,665 operations with 264 deaths, or 15.8 per cent. In addition to his figures (260 cases) for the combined operation, I have gathered enough to bring the total up to 320 operations, with 129 deaths. While a few cases from the Mayo Clinic are included in the series, we learn from more recent papers by W. J. Mayo,[7] that the total is now much larger. Up to Dec. 31, 1915, of 753 patients, radical operation was done in 430 cases, with an operative mortality of 15.5 per cent. Before 1910 it was 17.8, and remained about the same, 17 per cent., for the next three years, but for the period from 1913 to 1915, it was reduced to 12.5 per cent.—a splendid showing. Within the last few weeks, Lynch[8] informs us that the mortality for his and Tuttle's cases was 16 per cent.

The proportion of cases judged suitable for operation, the operability in other words, has been steadily rising in that great center of surgical activity, the Mayo Clinic. From 1910 to 1913, it was 51 per cent., and in the period from 1913 to 1915 it was raised to 71.8, though, as just stated, the operative mortality fell from 17.8 to 12.5 per cent. Even so experienced a surgeon in rectal surgery as Mr. Cripps[9] performed excision in only 108 cases of 445, or 25 per cent., 151 patients being subjected to colostomy, and 115 to palliative operations. In Tuttle and Lynch's experience during nineteen years, 153 out of 491 cases were deemed inoperable.

Extension of the cancerous process to the contiguous structures was, until recently, held to place the case in the inoperable class, but this no longer holds good for the Mayos. In six cases total hysterectomy was performed. In six more, a part of the posterior vesical wall was resected. The similar wall of the vagina was removed in twelve, and the whole of the prostate, or part only, with one or both seminal vesicles was removed in two, while on five occasions, one or more loops of small bowel as well were resected. As long ago as 1905, Mackenrodt[10] showed that the parametrium and vagina are often invaded, and he excised them with the uterus itself, when necessary.

Not long ago, a three-year survival following operation for malignant disease was looked on as a suc-

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

1. Morson, A. C.: Brit. Jour. Surg., 1914-1915, **2**, 354-363.
2. Radium Institute of London, Annual Reports, 1913-1917.
3. Burrows and Luyton: Arch. Radiol. and Electrotherap., 1917.
4. Janeway, H. H.: Radium Therapy in Cancer, New York, 1917.
5. Mummery, P. L.: Lancet, London, 1911, **2**, 1821; Ibid., 1913, **1**, 719.
6. Hartmann, Henri: Presse méd., 1909, **17**, 929; Jour. de chir., 1913, **11**, 693.
7. Mayo, W. J.: Ann. Surg., 1916, **64**, 304.
8. Lynch, J. M.: Ann. Surg., 1918, **67**, 504.
9. Cripps, Harrison: Brit. Med. Jour., 1912, **2**, 843.
10. Mackenrodt, W.: Ztschr. f. Geburtsh. u. Gynäk., 1905, **54**, 514.

cessful result. Of course, this is no longer deemed a "cure," and even the three-year survivals in cancer of the rectum are not especially notable from a numerical standpoint. I have collected 966 records of operations, 218 of these being three-year survivals. In addition to those of Tuttle and Lynch, they are from the clinics of Roux,[11] Kocher,[12] von Eiselsberg,[13] and Hochenegg respectively. At the Mayo Clinic, of 364 patients, 37.8 per cent. lived three years or more, and 35.8 per cent., five years or more.

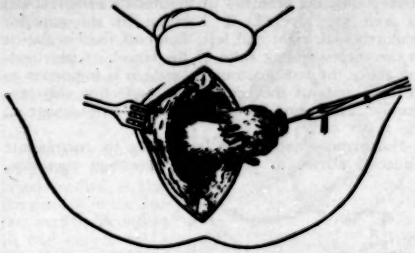

Fig. 2.—Removal of rectum by perineal route, showing impossibility of getting high enough up to reach lymph nodes (Quénu and Hartmann). The middle fasciculi of the levator have been divided, exposing the lateral surface of rectum, and in front the anterior fasciculi of the levator.

TYPE OF OPERATIONS

The perineal operation of Lisfranc (1826) now nearly a century old, strange as it may seem, occasionally furnished results as good as those obtained by more extensive procedures. Thus the late Mr. Dent[14] of London, Nov. 9, 1882, operated on a man, aged 52, by the perineal route. The nodes were removed from the ischiorectal fossa, the anus being left. The bowel could not be pulled down. As a result, there was good control of solid feces and partial of fluid feces. Jan. 29, 1904, the man was readmitted. The anus, which appeared perfectly healthy, was represented by a funnel-shaped depression. The point of union of the divided intestine was a sphincter-like constriction which admitted the index rather easily. Evidences were present of metastases to the liver, and the patient died, April 25.

Of fifty-eight operations done by Miles[15] there was recurrence in fifty-five, and other things being equal, this route should be restricted for epitheliomas limited to the anal region.

Notwithstanding the unfavorable opinion respecting it entertained by many authors, Kraske's plan of sacral resection, judging by the figures from Hochenegg's clinic furnished by Bacharach,[16] gives good results, namely, about 320 operations, with an operative mortality of 13.7 per cent. In 1,244 cases collected by Lusk[17] from fourteen different continental clinics, the operative mortality varied from 6.4 (Poppert) to 32 per cent. (von Bergmann, Schede and Rotter, respectively).

Nevertheless, the method of choice is the combined or abdominoperineal route, which alone affords free access and enables the surgeon to go well beyond the tumor mass, excising it with any extension to the regional nodes, and allowing the arteries to be ligated at a point where there is no danger of gangrene.

In regard to metastases, in the enormous number of necropsies on carcinoma in various parts of the body tabulated by the lamented Murphy,[18] that is, 10,310, nearly 20 per cent. (or 19.7 to be exact) had no metastases. The proportion for the rectum separately was about the same (22.2 per cent). This accords with the usual experience that the types of cancer involving the rectum and anus—squamous and columnar-celled—frequently end fatally without any evidence of metastatic deposits.

Last year, Symmers[19] studied a series of 298 metastases found in 5,155 necropsies at Bellevue Hospital in a decade, and observed that of the twenty-eight examples of carcinoma in the lower intestinal tract, no less than 15, or 53.5 per cent., were free from secondary growths. A striking contrast to the high degree of malignancy attending tumors of the upper bowel and stomach.

I have collected 997 necropsies on cancer of the rectum, and in about one third (324 cases) the regional nodes were affected. They would be beyond reach, as a rule, by the perineal or Kraske operations.

ABDOMINOPERINEAL OPERATION

To prevent cancerous material being forced into and along the lymphatics at the time of operation, it is a well recognized procedure in cancer of the mamma, for example, to begin the dissection from above and work down against the lymph current; and the same should hold good in excision of the rectum. Obviously this can be done only by the abdominoperineal route.

In regard to the distribution of the lymph vessels, for the present purpose and without going into detail this may be stated as ending in the inguinal nodes for

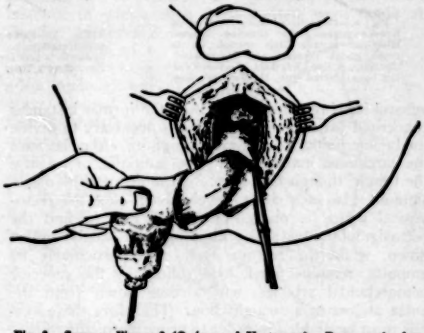

Fig. 3.—Same as Figure 2 (Quénu and Hartmann). Between the forceps and the wall of the rectum, which has been pulled to the right, is seen the left layer of the mesosigmoid forming a triangle, the anterior base of which is a free border.

the perianal collectors, and in the nodes of the mesosigmoid for the collectors from the rectum proper. Here again the latter would be out of reach in many instances if sought for by the "low" operation.

A frequent cause of death following operations by the perineal or sacral method is gangrene of the bowel,

11. Vuichoud, R. (Roux's Clinic): Thèse de Lausanne, quoted in Jour. de chir., May, 1914, p. 649.
12. DuPan, Martin (Kocher's Clinic): Rev. de chir., July, August, September, October, 1906, pp. 133, 258, 405, 489.
13. Korbl, H. (von Eiselsberg's Clinic): Arch. f. klin. Chir., 1913, 101, 449.
14. Dent, C. T.: Lancet, London, 1904, 2, 596.
15. Miles, W. E.: Glasgow Med. Jour., 1912, 77, 81.
16. Bacharach: Jour. de chir., October, 1908 (Appendix, p. 21).
17. Lusk, W. C.: Surg., Gynec. and Obst., 1908, 7, 119.
18. Murphy, J. B.: General Surgery (Practical Medicine Series), Chicago, 1916, p. 169.
19. Symmers, Douglas: Am. Jour. Med. Sc., 1917, 154, 225.

either partial or complete. This is due to the fact that the superior hemorrhoidal arteries are end-arteries as shown by Sudeck[20] in 1907 and corroborated by Hartmann[8] in 1909. The "critical point" of the former is at the junction of the superior hemorrhoidal with the lowest large anastomotic branch. When ligation is performed below this point, gangrene will probably follow, since the bowel does not receive adequate nourishment. Moreover, to get sufficiently high up to deal with this junction, one must go in from above. Hence, Sudeck suggested an intervention in two stages: 1. Through a laparotomy incision, the superior hemorrhoidal is ligated high up, and at the same time the bowel is partially loosened. Then, 2, the resection is completed by way of the perineum.

On two occasions, Hartmann, after bringing the bowel down through a perineal operation, found that gangrene had ensued; and in several others, while there was an apparently perfect operative cure, recurrence took place in the pelvic cellular tissue, although the mesenteric had no effect on the circulation of the rectum, provided it was done between its origin and the last important collateral, which comes off two-fifths or three-fifths inch below the sacral promontory. 2. Ligation of the inferior mesenteric below this lowest collateral leads to almost complete suppression of the blood supply to the rectum and to the rectosigmoid junction. This suppression is all the more complete in that, during perineal amputation, the inferior portion of the bowel, being isolated from its peripheral connections, the branches of the middle hemorrhoidal as well are severed. 3. Ligation of the superior hemorrhoidal, right and left, shuts off the circulation in the corresponding sides of the bowel. After ligating above the last anastomotic arch, it is important to tie both ends of the vessel. By neglecting this precaution, Hartmann lost a case from hemorrhage at the lower end.

Hartmann's experience leads him to corroborate Sudeck's advice to perform a two-stage operation.

Fig. 4.—Portions of bone removed in Kraske method; also showing impossibility of getting high enough up to reach nodes (Quénu and Hartmann). Continuous line, Kraske's line for dividing bone; dotted line, Hochenegg's line.

Fig. 5.—Same as Figure 4 (Quénu and Hartmann). Continuous line, Bardenheuer's line for dividing bone; dotted line, Rose's line.

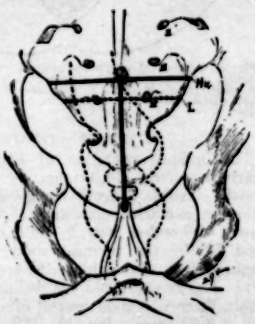

Fig. 6.—Same as Figures 4 and 5 (Quénu and Hartmann). Continuous line, Heinecke's line for dividing bone; dotted line, Levy's line.

mucosa itself remained free. Both the former instances concerned patients in whom it was necessary to divide the hemorrhoidal vessels rather high up, either because the carcinoma involved the upper ampulla, or because the tumor, though low down, had infiltrated the mesosigmoid. In such cases, he observed, once the recto-vesical pouch is opened, it is not rare to find the rectosigmoid junction presenting and easily pulled down, while the rectum itself, and particularly its ampulla, remains fixed, held solidly by the superior hemorrhoidal arteries, which come down from the aorta almost in a straight line. Therefore these vessels must be divided in order to bring the rectum down, and while this enables the bowel to be pulled out, gangrene is apt to follow. This complication is readily understood by a study of the vascular relations. In other portions of the bowel, the arterial supply is by a series of anastomosing arches, while in the terminal portion, the hemorrhoidal arteries descend without giving off any anastomoses.

This arrangement is shown by a series of injections carried out by de Dieterichs under Hartmann's direction. The former found: 1. Ligation of the inferior

20. Sudeck, P.: München. med. Wchnschr., 1907, 54, 1314.

In the first, in addition to ligating the vessels, one is able to clean out the presacral tissues, lymph nodes, etc., which may be invaded by the cancerous process. The second stage is excision through the perineum.

It seems to me no better argument for the combined operation may be made than the two cases referred to by Cole[21]: In one there was a deposit in the pericolic connective tissues 3 inches above the margin of the rectal growth, and he points out that if the latter had been excised together with one inch of normal bowel above, the line of incision would have passed close to the other deposit. In the other, a malignant ulcer was present on the posterior wall, and though small (0.75 inch wide), microscopic examination showed it had involved the whole thickness of the wall and spread freely into the connective tissue and nodes of the mesocolon.

Another argument for the abdominoperineal method is that the growth in the rectum may be secondary to one higher up, and the latter escape detection. Cole also narrates an example of this. At a laparotomy, the pelvic colon was found adherent to the anterior wall of the rectum at the bottom of Douglas'

21. Cole, P. P.: Brit. Med. Jour., 1913, 1, 431.

culdesac. It was thought unsafe to separate the uterus, so this organ as well was removed. Some 12 inches of bowel were excised and two growths found present, though only one had been diagnosed; both were in the bowel wall at the site of adhesions. The upper in the pelvic colon, of the whipcord type, had completely encircled the intestine, producing the symptoms of obstruction for which the patient sought advice. The lower growth in the rectum was a carcinomatous ulcer, affecting the anterior and left lateral walls. Cole found it difficult to escape the conclusion that the upper mass was the older, and that the lower one arose from contact.

Fig. 7.—Lymphatics of rectum (Barnes). The lymphatics, as a rule, flow in the direction of the blood vessels. An exception is found in the lymphatics around the anus, which flow into the inguinal nodes.

Another reason for adopting the combined method is that the growth in the rectum may be secondary to one higher up, a "graft," in other words. This variety generally follows a tumor in the stomach, though it may also be due to one in the ovary, gallbladder, or the intestines, especially the larger one (Oehler[22]). Out of 463 cases, secondary nodules were found in the rectum in fifteen. In six isolated nodules above the growth, five below the mass, and in four multiple secondary nodules (Colwell and Woodman[23]) were found. Laparotomy allows search for the other one to be made.

Attention may be here drawn to some interesting findings some years ago, of Ryall[24] and Moullin.[25] The former, who is surgeon to the London Cancer Hospital, reported twenty-five examples of what he calls "infection" of operative scars after cancer operations; these involved all parts of the body. I have time, however, to quote only one or two:

In a woman, aged 32, an exploratory operation was done for cancer of the upper rectum, which proved inoperable. Some time later she was readmitted and colostomy done. At this time, it was noted that a series of nodules were present in the laparotomy scar, and they all appeared to have arisen in the site of the sutures. A similar case is narrated in a woman, aged 26, with cancer of the sigmoid.

Ryall states:

Cancerous infection of wounds during operation is a real and exceedingly grave danger, and one which I regard of the utmost importance. Moreover, it is a danger that cannot be too carefully guarded against, and any failure to avoid it has an important bearing on cancer recurrence.

The following year, Moullin recorded a most interesting case from this standpoint:

In a man, aged 48, at operation for pyloric cancer, some disseminated nodules were found scattered over the gastric serosa. Gastro-enterostomy was done. Six months later, there was a double row of cancer nodules on either side of the laparotomy wound. Two rows of sutures had been inserted, one interrupted, of stout catgut, passing through all the layers of the wall, except the skin; the other continuous, of fine gut, through skin only. Practically all the former points, though none of the continuous ones, were infected. It was evident cancer cells from the peritoneal cavity had invaded the wall wherever the parietal peritoneum had been pierced by a suture. The stitches had not carried the cancer germs in, for they had never been near the growth. But either by perforating the serous layer or by acting as irritants, they had helped the development of the invading germs to such an extent that each suture point had become a cancerous nodule. The immediate source of the infection, Moullin thought, was in all probability the nodules on the serosa, which were constantly rubbing against the anterior wall. The line of the laparotomy incision seemed intact between the two rows of nodules.

The same explanation holds good for cases in which cancer recurs at suture points in cancer of the mamma. Moullin points out that the cancer germs are not carried in by the needle or suture, but they are more widely distributed in the surrounding tissues than is apparent at the time, and only develop or perhaps develop first at those points where the resistance of the tissues is lowered by the presence of an irritant, such as a suture.

If, as our author believes, the germs are more widely distributed than seems to be the case, is not this additional argument for a wide excision, which can best be done with a free exposure of the parts, such as is only to be had by abdominal section?

CONCLUSION

I would repeat the suggestion I made several years ago, in a paper read before the American Proctologic Society,[26] which I believe still holds good. First of all, every person who has reached the so-called "cancerous age" should be examined periodically for evidence of commencing carcinoma, not necessarily of the rectum alone, but, in women for example, of the uterus and mamma also. Neither the patient nor the practitioner should allow his interest in these periodic examinations to slacken. In my paper, I refer to an instance in which such examinations were made at regular intervals after excision of a mammary carcinoma, and eighteen years elapsed before the search was rewarded by discovery of a recurrence in the scar.

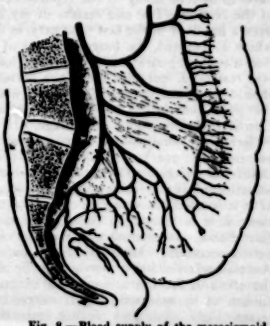

Fig. 8.—Blood supply of the mesosigmoid (Hartmann). The cross shows the location of the "critical point."

The responsibility of the family physician is great, for he is usually the first one to be consulted. He must not content himself with a perfunctory diagnosis of "piles" without even inspecting the the anal region, and an equally perfunctory prescription of ointments.

Jones[27] states that of the patients entering the Massachusetts General Hospital with cancer of the rectum, 75 per cent. had been treated for a longer or shorter time for "hemorrhoid," and the remainder for

22. Oehler, J.: Beitr. z. klin. Chir., 1913, **87**, 593
23. Colwell and Woodman: Arch. Middlesex Hosp., 1905, **56**, 141.
24. Ryall, Charles: Lancet, London, 1907, **2**, 1311.
25. Moullin C. W. M.: Lancet, London, 1908, **1**, 285.
26. Pennington, J. R.: Tr. Am. Proctol. Soc., 1908, p. 101.
27. Jones, D. F.: A Two-Stage Combined Abdomino-Sacral Operation for Carcinoma of the Rectum, THE JOURNAL A. M. A., Aug. 23, 1913, p. 737.

"diarrhea." Instead, the bowel must be inspected through the proctoscope. This calls for possession of the necessary armamentarium, and in turn the skill to interpret appearances visible through the instrument. In case of doubt, life should not be jeopardized by a procrastinating policy, but advantage taken of consultation with the specialist.

It has been shown of late years that a large proportion of malignant growths originate in scar tissue. Patients with rectal cancer often give a history of previous operations on the bowel. Does the cancer occur in the cicatricial tissue left from an operation done by one of the usual methods—ligature, clamp and cautery, or some other technic leaving much scar tissue, and sometimes stricture? May it not be occasionally grafted on the scar remaining after the common incision plan of operating for fistula? I have recently had such a case. All proctologists have seen large and ugly scars from time to time following this method. Here is a suggestion to be followed: Secure a smooth healing by resorting only to such procedures as leave a minimum of cicatricial tissue, and consequently the least possible nidus for future mischief.

ABSTRACT OF DISCCUSSION

Dr. Dwight Henderson Murray, Syracuse, N. Y.: I hope that when Dr. Pennington sums up he will tell us what determines the operability of a cancer, and at what point in the life of it, or what part of the extension of it. In my opinion, it is very difficult, even with the microscope and a good pathologist, to tell just where cancer tissue ends and normal tissue begins. Even beyond the point in the tissues where the microscope shows that changes have taken place, the tissues have really changed, and the microscope will not show it. My own experience forces me to the conclusion that in the majority of rectal cancer patients, if we will do a colostomy it will be a greater kindness to the patient than to try to extirpate the cancer by operation. The majority of these patients will live about as long as the operated ones.

Dr. William M. Beach, Pittsburgh: It is exceedingly hard to believe many of the reports of end results in cancer of the rectum. The end results of my cases, and I have had over a hundred in the last ten years, is death. In the cases in which I operated, the longest period of life following operation was three years; and yet, while I am rather pessimistic of end results, I feel that there are certain cases in which we should intervene operatively. Now what are one or two of the signs that will lead us to select a case for operation? One is the hemoglobin percentage. If the patient has 45 or 50 per cent. hemoglobin, do not operate; if the hemoglobin percentage is nearly normal, 70 or 80 per cent., it offers a fair chance of success. The next point that will guide us in the selection of an operative case is the location of the neoplasm. If it is located low down, it offers the best chance for operation; if it is located in the loop of the sigmoid, it offers a fair chance. In operating in such a case we should resort to anociassociation. Many of these patients die from shock. Anociassociation helps wonderfully in tiding the patient over the crisis of the operation. Cure of cancer of the rectum, as spoken of by men who report cures, I believe, is a relative term. Very often they do not state the length of time the patient lives. If there is no recurrence, say after a year, it is reported cured. A surgeon near my city reported a case of absolute cure of cancer of the rectum, and it was cited far and wide. The patient was said to have lived out his natural life. I asked the surgeon whether he was sure of his diagnosis and he admitted that he was not. I believe that it was a case of syphilitic stricture. So that in reporting these optimistic results, the diagnosis should be positive. I operate on some of these patients, for I believe that if you can give a patient one year or two years or three years of life, that is much more comfortable than if you do not intervene. I never cured a case, and I never heard of anybody else that did. I agree with Dr. Murray, that we should do the more rational thing, a colostomy, and then, if possible, apply radium. In a number of cases I tried following up a colostomy with radium. One patient is still living, after two years. He is not cured. Radium could readily be applied because the lumen of the rectum was not interfered with much. It was full of cancer nodules, and the radium is simply inhibiting the process of the growth. These patients are all anemic, and for that reason the powers of resistance are very low; hence a great deal of shock is connected with the operation.

Dr. Charles J. Drueck, Chicago: Dr. Pennington deserves a great deal of credit for teaching patients to come to us in the precancer stage, yet I have not seen any results from his efforts. Most all of these patients come when the cancer is well advanced. Such patients must have something done for them. In a case of almost complete obstruction I made an abdominal anus, and the patient is still living, a year and a half or more after operation. He is in very good physical condition. Although these patients come to us when they are anemic, still, after the abdominal anus is made, it is sometimes surprising how they will rebound. They regain almost, if not quite, all their former vigor. In the second stage of the combined abdominoperineal operation, when we do the perineal work, I think we are inclined to be urged by the patient to do the perineal section too soon. I have one case in which the combined operation was done, and the patient is alive, without any recurrence, over two years after operation. If we can tide these patients over and not submit to the second stage of the operation until they have rebounded as much as they are going to, I think we can get better results from our perineal work.

Dr. George E. Pfahler, Philadelphia: It has been shown that you can get a great deal of information in diagnosis, actual demonstration of the disease and locating the extent of it, by a careful roentgen study. Dr. Pennington dismissed the subject of roentgen therapy and radium therapy by mere mention. Now he is probably justified in doing that if it is a question of replacing the operation by the roentgen therapy or radium therapy, but there is no reason why all three cannot be used, or why they should not be used in every case. Operate if you can. Do all you can by operation. Use radium locally, and use deep roentgen therapy through the whole field of glandular extension that is likely to be involved, and I am sure that you will improve the results. Statistically, no one can say just how much can be done, because there have not been a sufficient number of these cases treated. I have treated only a few, because only a few cases have been left to me for postoperative treatment. Why this is I do not know. Those that have been left have given encouraging results generally, and the patients that have been left to me for treatment are those far beyond any operation. While I have obtained some improvement, some palliation even, in those cases, I have never had a patient I considered well. I have seen many convincing results of the disappearance of recurrent cancer. If you will just combine this additional force to what you are doing by surgery, and then introduce radium against the growth, thoroughly filtered, especially by the nonmetallic substance, and then use crossfire deep roentgen therapy, I am sure you will accomplish more than in any other way.

Dr. J. Rawson Pennington, Chicago: Formerly I used the roentgen ray in the treatment of cancer of the rectum. For the first few days the patients seemed to be greatly benefited, but later the disease appeared to advance more rapidly than if I had not used it. However, our knowledge of this agent today is in advance of what it was years ago. Concerning Dr. Murray's query, I cited the statistics of the Mayo Clinic. Do not think I am overoptimistic about curing cancer of the rectum. I am not; but one thing is very certain —if in 22 per cent. of the cases of cancer of the rectum the tumor is a local disease, we should cure a larger percentage than we do. The method of procedure has much to do with the end results. Among the various operations for cancer of the rectum, the radical abdominoperineal operation with left inguinal colostomy is the one most likely to eradicate the disease. It cannot be denied that by this procedure the

operator has the best opportunity to circumvent the disease, and is less likely to squeeze the infected material into the surrounding tissues.

DR. DWIGHT HENDERSON MURRAY, Syracuse: Dr. Pennington did not answer my question. I want to know what the physical findings are, and what the condition of the parts is that will show when a case is operable, and when it is not. I do not care anything about the statistics. A certain number of patients are operated on and a certain number are not, but when you examine a case, on what do you base your decision of operability?

DR. PENNINGTON: That question is decided on the physical findings. If the patient is very anemic, past 70 years of age, has much albumin in the urine, nodules in the liver, and other evidences of metastases, or if the condition of his heart is such as to question the advisability of giving an anesthetic, advise against an operation. If his condition is good, he is under 70, with little or no albumin in the urine, no recognized evidences of general spread or glandular enlargement, and the condition of the heart fairly good, operate.

DR. MURRAY: Suppose ten or even twenty out of a hundred get "well" for two or three years, as a result of operation, and that thirty out of a hundred die a year and a half or two years earlier because of the operation, what about that? How much is to be gained as the result of the operation?

DR. PENNINGTON: No man knows, nor can he foretell, the natural termination of human life.

TREATMENT OF COLON BACILLUS INFECTIONS OF KIDNEY AND BLADDER

BY SURGICAL MEASURES APPLIED TO THE ASCENDING COLON *

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LOS ANGELES

My frequent observation has been that colon bacillus infections of the kidneys and the bladder persisting and unyielding to treatment are invariably due to colonic stasis of the fecal current. This interruption is usually in the cecum and is due to adhesions of this organ to the surrounding structures immobilizing it. From the chronic stasis thereby induced, a constant supply of colon bacilli enter the circulation through the lymphatics in the kidney capsule or by the blood stream and primarily infect the kidney pelves on their way out, if there is any interruption to the free exit of urine, either in the ureters, at the neck of the bladder, or in the urethra. Once the infection is established, it is practically incurable until a normal condition in the large intestine or one approximately normal is restored by surgical measures.

REPORT OF CASES

CASE 1.—G. J., aged 46, railway engineer, Sept. 18, 1916, complained of prostatic trouble. Urine freshly passed into a sterile glass contained many motile bacilli and much pus. Material massaged from the prostate did not contain any pus or residual urine. The image of the bladder neck was normal. There were a few recent hemorrhagic spots on the superior bladder wall and two on the right lower wall, probably made by my assistant with the catheter. There was a mild cystitis of the bladder base. Polypi were visible in the posterior urethra. The patient gave a history of sexual strain. His condition was thought to be chargeable to these polypi, and they were removed in several sittings, with the electric cautery and silver nitrate fused on a probe. The bladder was irrigated daily with mixed potassium permanganate and silver nitrate solution.

October 5, the urine having become clear, the patient went back to work, but on the 18th of the same month, he came again with his urine very cloudy with pus and colon bacilli, and complained of slight pain in the right costovertebral triangle. He was treated in the same manner until November 20, when the urine was again perfectly clear and the prostate normal. He was then sent away, but returned, Jan. 4, 1917, complaining of pain in both sides in the neighborhood of the kidneys and with the urine loaded with colon bacilli and containing many pus corpuscles. Cystoscopy was again performed and the right ureter catheterized. This urine contained many colon bacilli, no pus, a few blood corpuscles and many epithelial cells, both small and large, some with fatty degeneration. Six c.c. of thorium solution were introduced and a pyelogram taken which was negative as to stone or to deformity of the kidney pelvis. On the 7th, the urine was macroscopically clear, but on the 8th, after a long automobile ride, it contained much pus and clouds of colon bacilli. On the 27th, the urine was clear again, and as the patient was feeling excellent he was sent back to work. In the interval between January 4 and January 27, he had pelvic lavage and treatment for the bladder and prostate with all the usual means for combating colon bacilli, including vaccines and the various balsams. I determined that if the disease recurred I would examine the intestine by the roentgen ray. When the patient returned, February 27, this was done. The plates showed intestinal stasis about the appendix and cecum, and the screen showed this part of the intestine to be immovable, containing barium more than forty-eight hours after ingestion of the meal.

March 30, after the bowels had been well emptied with castor oil and black draft for several days, Dr. Henry Howard and I performed a laparotomy. We found the omentum adherent to the top of the bladder, and also, in two places, to the anterior abdominal wall; the cecum was bound to the ileum and the side wall of the abdomen and doubled over in such a manner as to adhere to the ascending and transverse colon. The appendix was atrophied but unusually long and with its apex adherent to the liver; it was removed and the adhesions broken up. As much of the raw surface as was possible was covered with peritoneum and omental patches. About three weeks after his operation, the patient had great showers of calcium phosphate, followed by one of urates, mixed with indigo, which could be seen as a dark powder in the urine, the urate crystals were very abundant and sparkled like topazes when the urine stood in the sunlight.

Before he had entirely convalesced from his operation, the colon bacillus infection had disappeared from the urine and it has never returned. The chronic constipation has never been entirely corrected, but by the use of oxgall tablets and agar agar, he has been able to prevent stasis, and on the few occasions when he has been constipated there has been no return of the bacilluria.

CASE 2.—A. M., man, aged 47, came to me in March, 1915, complaining of uneasiness over the bladder. He had been treated for "uric acid" at Vichy, in France, and for stricture in Paris twelve years before. He had a residual of 10 c.c. with some blood in the urine. His trouble was attributed to stricture, as cystoscopic examination failed to reveal any lesions in the bladder. It was noticed that he had colon bacilli in the urine, but their presence was naturally attributed to the stricture. The urethra was dilated until we could pass a No. 28 Charrière sound without difficulty. The uneasiness over the bladder still remained and he still had bacteriuria.

A second cystoscopic examination, made with the Garringer instrument, showed that he had a posterior transverse bar just inside the bladder neck, and a small glandular prostatic tumor on the right side just outside the bladder neck; the bar was removed through a suprapubic incision by Young's punch, and the tumor by enucleation, July 9, 1915. Recovery was perfect. In September, however, he was still complaining of the uneasy feeling over the pubes, and he still had colon bacilli in the urine, together with great frequency. In December the urine continued cloudy, and the patient was again showing signs of slight but steadily increasing

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

residual urine. In the meantime I had noticed distortion of the image of the neck on the left side of the bladder with the appearance of a tumor of the prostate on this side.

Under daily treatments with local antiseptics, phenol (carbolic acid), 1 per cent. in boric acid solution, and silver nitrate solutions and the use of the Kollman dilator, in February, 1917, there was no residual urine, but the urine still contained pus and swarmed with colon bacilli, and this condition continued steadily. In January, 1917, I began to place importance on the fact that the man was chronically constipated. Ureteral catheterizations showed that he had colon bacillus bacteriuria in the pelves of both kidneys. I had the intestine examined with the roentgen ray and found that there was a stasis in the ascending colon with an old adhered appendix apparently attached to the top of the bladder. April 5, 1917, Dr. Rea Smith and I performed a laparotomy. We found the ascending colon twisted on itself. The deformity appeared to be prenatal more than inflammatory, but it was adherent to the transverse colon and to the omentum, almost its entire length. We broke up the adhesions, straightened out the intestine, and patched the raw places with mobilized omentum.

Recovery was very slow but complete, and on May 5 the patient was having natural bowel movements, a thing he had not had since boyhood. The urine was still full of colon bacilli. May 8, I performed a perineal prostatectomy and removed the growth on the left side, which I had suspected to be cancerous because of its rapid development after the suprapubic operation, and straightened out an adhered verumontanum. Thus I took away the nest from which the infection started and removed the obstruction to the exit of urine, which kept up the infection, and brought the man into a condition in which a cure could take place.

The result is that today he has no longer any uneasy feeling over the bladder, he lies in comfort all night, the urine is perfectly clear and free of colon bacilli, he passes it naturally, he has bowel passages without the use of laxatives, and he is to all appearances a perfectly normal and well person.

EPIDEMIC PNEUMONIA (SPANISH INFLUENZA) IN PREGNANCY

EFFECT IN ONE HUNDRED AND ONE CASES

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During the recent epidemic of pneumonia, or so-called Spanish influenza, 2,154 patients were admitted to Cook County Hospital between Sept. 18 and Nov. 5, 1918. Of this number, 101 were pregnant women.

Of these 101 cases of pneumonia, complicated by pregnancy, fifty-two died, giving a mortality of 51.4 per cent., as compared with a mortality of 719, or 33.3 per cent., of the 2,154 patients admitted to the general hospital. This shows a relatively higher death rate by 18.1 per cent. in the pregnant women. These apparently high percentages of mortality may be explained in part by the condition of the average patient on entrance to this hospital.

The Cook County Hospital received by far the largest majority of the patients during this epidemic, all of whom were from the poorer classes of the population. The patients were all extremely ill on entrance, many dying in ambulances on the way to the hospital, many in the examining room, and others while on the way to the wards. Of the fifty-two deaths occurring in the pregnant women observed, 53 per cent. died within the first twenty-four hours and 73 per cent. in the first forty-eight hours after admission.

Of the fifty-two deaths, in thirty-nine, or 75 per cent., an interruption of pregnancy occurred, and in a great majority of these cases this occurred within twenty-four hours preceding death. These figures include abortions, premature labor and labor at or about term. Interruption of pregnancy occurred with equal frequency, irrespective of the month of gestation.

Thirteen, or 25 per cent. of the patients remained pregnant at death, and practically all of these were in the fifth to seventh month of pregnancy. Seven of these were in the seventh month, three in the sixth month, two in the fifth month, and one in the third month of pregnancy.

Of the forty-nine patients discharged, twenty-one, or 42.7 per cent., aborted or went into labor prematurely. The remainder of these were pregnant at the time of discharge.

The cause of this frequency of interruption of pregnancy is uncertain. The fact that by far the greatest majority of abortions or premature labors occurred within twenty-four hours after death, at which time the patients were extremely toxic, would lead one to assume that probably this condition, associated perhaps with the lack of proper oxygenation of the fetal blood, was responsible for this frequency. The cough, which was a constant feature in these cases, undoubtedly played a part in the interruption of the pregnancy. The exertion incident to abortion or labor also tended to exert a harmful influence on the mother.

The most prominent feature noted during the clinical course of the disease was the apparent ease of abortion or premature labor, its rapidity and the apparent lack of pain incident to it. The mental state of the patient due to the toxemia may possibly have accounted for the freedom from pain. In term labors, the duration seemed to be no longer than that of normal labor.

The bleeding incident to labor, which would be equivalent to venesection (a therapeutic measure suggested when cyanosis appears) did not appear to affect the clinical course of the disease.

Complications were few in this series of cases. One case of empyema of the streptococcic type developed, the contents of the pleural cavity being a reddish-brown fluid. The empyema developed late, as has been characteristic of the cases following this type of pneumonia. Four patients developed suppurative otitis media.

Blood counts revealed the characteristic leukopenia, the degree of leukopenia varying with the severity of infection. The white cell count gradually increased as improvement occurred. Five patients, at the onset, gave a true leukocytosis of from 15,000 to 20,000. All of these patients recovered.

Of the twenty-two babies born, two developed definite symptoms of bronchial pneumonia within from eighteen to twenty-four hours after birth. This short interval after birth would make it difficult to say that infection did not occur in utero. Lung punctures of the stillborn gave negative cultures, however.

CONCLUSIONS

The death rate among pregnant women is materially higher than among nonpregnant women.

The frequency of the interruption of pregnancy in epidemic pneumonia is very high.

Abortion occurs with relative ease and lack of pain.

In the majority of cases, death follows within twenty-four hours after emptying of the uterus.

The percentage of recoveries after interruption of pregnancy is small.

THE PROPHYLACTIC VALUE OF LEARY'S VACCINE

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As an institution offers unusual advantages for the study of an epidemic and the measures for its control, a record of our experience with influenza vaccine at the state sanatorium may not be without value. The institution had about 225 patients and ninety-four employees. During the last two weeks of September, 1918, four employees and five patients contracted influenza. These patients were all in one ward of the hospital and were apparently infected from a patient who visited Woonsocket. They were isolated in rooms and a cubicle of the ward, and the disease did not spread.

INCIDENCE OF INFLUENZA AMONG VACCINATED AND UNVACCINATED

Wards	Vaccinated			Unvaccinated		
	Number of Persons	Cases of Influenza		Number of Persons	Cases of Influenza	
		Number	Per Cent.		Number	Per Cent.
East	32	11	34	26	12	46
West	31	6	19	10	3	30
Hospital 1	16	0	0	24	1	4
Hospital 2	14	1	7	24	0	0
Children	22	0	0	1	0	0
Employees	27	7	26	28	7	25
Total	152	25	16	113	23	20

The four employees were isolated in their rooms. September 29, all patients and employees, with few exceptions, were forbidden to receive visitors or leave the institution. We were free from influenza, which was at the height of the epidemic in the surrounding country, until October 10, when a woman patient admitted on October 9 developed the disease. October 14, a patient who slept near this patient developed influenza. October 22, the first case developed in the men's ward of the sanatorium, and from there the disease spread to the employees, until there had been a total of eighty-two cases, or 25 per cent. of the total population. All of the 114 young adults, including some expatient employees sleeping in the east and west wards, were probably well exposed to the disease and furnish the best opportunity to estimate its morbidity. Counting all cases that occurred before and after vaccination, 45, or 40 per cent., developed influenza. October 22 and the few days succeeding, influenza vaccine furnished through the courtesy of Dr. Timothy Leary of the Tufts Medical School was given to 172 employees and patients. The doses were 400, 800 and 1,200 million at twenty-four hour intervals.

In computing the incidence of the disease for comparison between vaccinated and unvaccinated, no cases were counted that developed before the vaccine was given, and no patient has been counted as vaccinated unless he received the three doses. Before the arrival of the vaccine, eight cases that terminated fatally had developed.

In estimating the value of the vaccine, it would seem clear that the children should be deducted from the total because they were quarantined and so far as known were not exposed to the disease. If the children are deducted, the influenza incidence was 20 per cent. among both vaccinated and unvaccinated. It would also appear preferable to deduct the two hospital wards which had only one case each which were so promptly isolated that the exposure probably was insufficient to test the vaccine. If these wards are deducted, ninety vaccinated persons furnished twenty-four cases, or an incidence of 26 per cent., while sixty-four unvaccinated persons furnished twenty-two cases, or an incidence of 34 per cent. In twenty-five influenza cases following vaccination, four patients, or 16 per cent., died. In fifty-seven influenza cases among the unvaccinated, the mortality was nine, or 15.8 per cent.

CONCLUSION

The morbidity was only slightly lower among the vaccinated, and the mortality among those who developed influenza was practically the same whether vaccinated or unvaccinated.

Military Medicine and Surgery

THE PANDEMIC IN THE ARMY CAMPS*

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The pandemic in the Army camps was a part of the great outburst that swept over the United States in September and October, 1918. This, in turn, was a manifestation of the still larger visitation that was to cover most, if not all, of the world.

As soon as the pandemic appeared, each camp and other station of troops was required to keep the Surgeon-General informed of the appearance and progress of the disease. Daily and weekly telegraphic reports were sent in giving the number of new cases of influenza and pneumonia and other details. Most of the statistical data presented here are taken from these reports.

Were it not for the pulmonary complication which has accompanied it, few would doubt that the disease was influenza. Its epidemic character, its clinical aspects and its bacteriology, so far as they have been studied, all point to that disease. It will consequently be called influenza here.

As to the lung complication, that is a similar matter. Objection has been made to the use of the term "pneumonia" to describe it. As yet no other official designation has been given it. It may or may not be a part of the original disease. Pending further investigation, and since it must be given some name in this report, it will be called pneumonia here.

Had it not been for the pneumonia, the pandemic would not have attracted much attention. Epidemics of so-called "colds" and other respiratory diseases occur every fall, and if the typical influenza of today does not bear a close resemblance to these

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familiar infections, there have been many cases in which the difference was not discernible. It took the pneumonia with its high mortality to command attention. The pneumonia places this outbreak among the most striking pandemics of modern times.

Excluding the pneumonia, the influenza of September and October seems to be identical with the influenza that visited the Army training camps in the United States last March and April. That it attracted little notice then was due to its mild character.[1] The influenza which until recently has been reported from Europe appears to occupy a position between these two so far as severity is concerned.

Apparently there have been three visitations, or waves, each succeeding one being more severe, more widespread and more fatal than its predecessors. This fact may or may not have significance for the future. It is possible that there will be another wave. There may be one or more. It is equally possible that there will be none. There is no firm ground on which to base a prediction one way or the other. Considering the gravity of the matter, it would be unwise to assume that we are entirely done with the disease.

During the period from Sept. 12 to Nov. 1, 1918, inclusive, there were 306,719 cases of influenza reported among the troops in America. During the same time there were 48,079 cases of pneumonia and 19,429 deaths. The total strength of troops may be taken as one and a half million. Therefore it is approximately correct to say that about one in every five had influenza, that of these about one in six developed pneumonia, and that of the pneumonia patients about two out of five died.

The country as a whole suffered severely but not so greatly in proportion to the population as did the camps. Up to and including October 26, a total of 86,045 deaths from influenza and pneumonia had been reported to the United States Public Health Service. This figure is incomplete, since it includes no report from some states and only partial reports from others; in many states deaths for cities only were included.

In the forty-five principal cities for which statistics are available, 3.24 per thousand are reported to have died. There were 127,654 deaths from all causes. Had there been no epidemic of influenza-pneumonia, it is estimated that there would have been 47,967 deaths. The difference therefore represents the deaths due to the pandemic: 79,687. If this rate prevailed throughout the continental United States, there would have been 341,021 deaths. To this must be added the 19,429 in the camps, making a total of 360,450 deaths. These figures are not estimates—they are not even good guesses; but they serve to show the scale on which the pandemic operated.

I. The Statistical Facts

The Outbreak

The first report that a serious epidemic existed in any camp came from Devens, at Ayer, Mass. September 16, the camp sanitary inspector, reporting through the camp surgeon to the Surgeon-General of the Army, announced that an epidemic of so-called "Spanish influenza" had broken out at Devens as a part of a general epidemic that had attacked Boston and the neighboring states and towns some weeks before.

The Devens epidemic is supposed to have commenced, Sept. 7, 1918, in D Company, Forty-Second Infantry. On that date a case of supposed meningitis was sent to the hospital from this company; on the following day twelve cases were sent for observation. These proved to be influenza. By the 16th, thirty-seven cases had gone from the same company. One death from pneumonia had occurred. Almost simultaneously, other cases appeared in other organizations. By September 12 the total number of patients that had been admitted was 599. The disease spread rapidly, in spite of the measures taken to check it. September 20, the epidemic reached its maximum intensity. On that day, 1,543 new cases were reported as having been admitted to sick report. After reaching this high point the number of new cases rapidly became less, so that by the end of the month there were less than 100 new cases reported per day.

Meanwhile, pneumonia had become a frequent and fatal accompaniment of the influenza. Fifty new cases were reported, September 19, less than two weeks after the influenza had been discovered. The number rapidly increased: September 24, there were 342 new cases. The number each day remained at about 200 for four days; then there was a decrease, until, before the end of the month, forty per day had been reached. By October 6, the incidence had fallen to ten or so a day. Through the rest of the month the number varied between three and seventeen per day. There was no return to large numbers.

TABLE 1.—THE RISE AND FALL OF THE EPIDEMIC AT CAMP DEVENS

	Duration, Days	Cases Influenza	Cases Pneumonia	Deaths
Rise (Sept. 12-19)	8	3,383	43	16
Peak (Sept. 20-21)	2	2,722	205	43
Rapid decline (Sept. 22-29)	8	3,141	1,496	298
Slow decline (Sept. 30-Oct. 18)	19	571	571	310

The Devens outbreak, so far as may be understood from the records at hand, could be divided into four parts, as shown in Table 1. It will be observed that the rise of the epidemic covered a period of about eight days; the peak, two days; the rapid decline, eight days, and the slow decline, nineteen days. Half of the deaths and nearly three quarters of the pneumonia occurred within less than three weeks of the outbreak.

Characteristics of the Typical Epidemic.

The characteristics of the Devens epidemic have been described here because they represent what has occurred at many camps. The earliest cases have often escaped identification. They have sometimes been taken for cases of food poisoning, meningitis or one of the common exanthems. The disease, which is epidemic, bears little resemblance to the coryzas and other respiratory affections to which the term "influenza" has been generally applied for the last twenty years. The so-called influenzas of ordinary times seem to have no relation to the present disease. Yet with a knowledge that influenza was in the vicinity, it is probable that cases of other respiratory infections have often been reported as that disease.

1. A report by the present writer, on an influenza epidemic in the Oglethorpe camps in March, 1918, may be found in abstract in the Journal of Laboratory and Clinical Medicine, 1918, 3, 46-49, and the Military Surgeon, 1918, 43, 398-402.

The leading symptoms in the typical cases are severe headache, chills or chilliness, pains in the back and legs, temperature sometimes as high as 104, great prostration, and drowsiness. Occasionally there are nervous symptoms; sometimes, but not always, the eyes and the air passages of the nose and throat are affected; there may be gastro-intestinal disturbances. The onset is sudden.

The fact that an epidemic existed in a camp has been generally recognized when the number of new cases has amounted to 100 or more per day. The incidence then increases rapidly. Sometimes the records show a great number of cases at the start, and there are marked fluctuations in the daily incidence as the epidemic continues. Striking irregularities do not represent the way in which the disease occurs, but are to be accounted for by the stress and difficulty with which the returns are collected. The greatest number of new cases reported for any day has often considerably exceeded 1,500 in a camp. At Devens the maximum was 1,543, at Grant, 1,810 and at Custer, 1,764.

The principal camp outbreaks have been charted as a part of the routine work of watching the progress of the pandemic. In making these charts it has been found convenient to mark time along the horizontal scale, giving one fifth of an inch to a day. The daily incidence of cases has been measured vertically, one inch representing 100 cases. So charted there is much similarity among the curves and especially among the members of certain groups of them. The explosive character of the infection is plainly indicated in most, as are the short duration, large incidence and rapid subsidence. The curves are never smooth, but are jagged, with steep inclines between the peaks and valleys. Only in exceptional camps has there been a recurring wave of noteworthy proportions during the course of the epidemic.

In another series of charts, the daily incidence has been plotted as rates, thus making allowance for the changes in strength that have occurred. In a third series the jagged irregularities have been eliminated, and smooth curves trace the rise and fall of the influenza and pneumonia. This has been done for all the camps. These pictures show as clearly as the data permit how the disease has come and gone. The charts furnish an invaluable means of analyzing and comparing the several camp epidemics. They have made plain many instructive facts and have pointed the way to many useful conclusions. But to go into the question of the individual epidemics would carry this discussion beyond its proper bounds.

Stated briefly, the influenza has usually occurred as an explosion, probably showing irregularities in the reporting. The maximum effect has been felt within about ten days after the onset. The duration has been less than three weeks, in most instances.

Within about a week after the outbreak of the influenza, there occurs an ominous prevalence of pneumonia. The pneumonia does not exist as a separate epidemic, but is always a follower of influenza. How the two diseases are related is not positively known. It is clear that the influenza paves the way for the pneumonia, if it does not actually produce it. Most of the pneumonia is of the lobular type and presents various unusual aspects. The time of greatest incidence is usually about a week after the greatest incidence of influenza.

The curves of incidence of pneumonia, when plotted as has already been explained, and with the same scales, are wholly different from those of influenza. The pneumonia does not appear to have been explosive. The curves for the different camps do not resemble one another. One would say that the pneumonia bore no fixed relation whatever to the influenza, except that it followed it.

SPREAD OF THE PANDEMIC

The second camp to report an epidemic, following Devens, was Upton, on Long Island, N. Y.; the third was Lee, in Virginia. Dix, in New Jersey, and Jackson, in South Carolina, followed immediately. Hoboken, N. J., Syracuse, N. Y., Gordon, in Georgia, and Humphreys, in Virginia, all reported on the same day. Within a week from the start, nine large camps in widely separated parts of the country were attacked. Others followed in rapid succession. Table 2 gives the order, according to the daily telegraphic reports.

TABLE 2.—ORDER IN WHICH THE CAMPS WERE ATTACKED

Order		Date	Order		Date
1	Devens	Sept. 12	11	Greene	Sept. 26
2	Upton	Sept. 13	11	McClellan	Sept. 26
3	Lee	Sept. 17	13	Kearney	Sept. 27
4	Dix	Sept. 18	12	Bowie	Sept. 27
4	Jackson	Sept. 18	13	Johnston	Sept. 28
5	Hoboken	Sept. 19	13	Sheridan	Sept. 28
5	Syracuse	Sept. 19	13	Sherman	Sept. 28
5	Gordon	Sept. 19	14	Dodge	Sept. 29
5	Humphreys	Sept. 19	14	Shelby	Sept. 29
6	Logan	Sept. 20	15	Custer	Sept. 30
6	Funston	Sept. 20	15	Hancock	Sept. 30
6	Meade	Sept. 20	16	Travis	Oct. 1
7	Grant	Sept. 22	17	Cody	Oct. 6
7	Taylor	Sept. 22	18	Porter	Oct. 6
8	Sevier	Sept. 23	19	MacArthur	Oct. 7
8	Lewis	Sept. 23	20	Fremont	Oct. 8
8	Newport News	Sept. 23	21	Wadsworth	Oct. 11
9	Pike	Sept. 24	21	Wheeler	Oct. 11
10	Beauregard	Sept. 25	21	Gremleaf	Oct. 11
10	Eustis	Sept. 25	22	Las Casas	Oct. 29

During this period, September 12 to 30, inclusive, thirty-one camps were attacked. The epidemics in this group had subsided in every case by November 1, with the exception of Hoboken, Kearney, Bowie and Shelby. Ten additional camps were attacked during October, completing the list of all the important camps in the United States. Las Casas, Porto Rico, which is last on the list, did not report cases until October 29, on which date an accumulation of 562 admissions was reported.

COMPARISON BETWEEN TENT AND BARRACK CAMPS

Of the thirty camps attacked during September, eighteen were barrack camps, eleven were tent camps, and two were ports of embarkation. During October, eight tent camps and two cantonments were attacked.

The appearance of the pandemic in the tent camps was apparently delayed by reason of their position. They were mostly in Southern states and not immediately adjacent to the seaboard. Speaking generally, the pandemic spread from the sea inland, and from the Northeast to the West and South. There is no reason to suppose that it traveled more rapidly than persons could travel. In cases in which it has appeared to do so, it is probable that infection has been established from foci before the latter were recognized, or from earlier outbreaks.

The pandemic appeared seven days later in the camps than in the cantonments, when these two kinds

of camps are compared as groups. Taking the barrack camps as one group and the tent camps as another, it appears that the disease spread rapidly in both—as rapidly in the one as in the other. There was, in fact, a remarkable similarity in the rate of spread in each kind of camp.

Interest attaches to a comparison between the relative severity with which the tent and barrack camps were attacked for a number of reasons. Among these is the fact that the tents afforded a greater separation of the men than did the barracks. The distribution of cases in cantonments and tent camps during the period of September 12 to October 31, inclusive, is given in Table 3.

TABLE 3.—DISTRIBUTION OF CASES IN CANTONMENTS AND TENT CAMPS, SEPTEMBER 12-OCTOBER 31

	Cantonments	Tent Camps
Camps attacked	29	19
Combined strength	748,622	313,302
Influenza	158,104	69,761
Pneumonia	30,090	9,740
Deaths	10,533	2,922
Per cent. having influenza	21.1	22.2
Per cent. having influenza and pneumonia	19.0	13.9
Case fatality of pneumonia	35.0	30.1

It should be noted that while the number of cases of influenza reported by the cantonments has been more than twice the number reported by the tent camps, the strength of the cantonments has been greater in almost the same proportion. When rates instead of cases are considered there appears to have been less difference in the severity of the pandemic than might be expected. But if there has been as much influenza in the one kind of camp as in the other, there has been no similarity in respect to the incidence or fatality of pneumonia.

The percentage of cases of influenza that developed pneumonia has been greater in the cantonments than in the tent camps; 9 per cent. in the one, against 13.9 in the other. The case fatality of pneumonia has also been greater in the cantonments than in the tent camps.

In order to study more carefully the progress of the pandemic in the cantonments and tent camps, Table 4 was prepared. Here the camps and cantonments are divided into two groups; the figures given are in the form of rates (annual per thousand). These show the suddenness with which the epidemic appeared, how rapidly it rose to its point of greatest intensity, and how it subsided.

TABLE 4.—PROGRESS OF THE INFLUENZA IN THE TENT AND BARRACK CAMPS

Cantonments	Annual Rates	Date	Annual Rates	Tent Camps
First report	255	Sept. 12		
	995	Sept. 19	73	First report
Peak	5,765	Oct. 4	1,830	
	2,220	Oct. 10	3,905	Peak
	180	Oct. 26	605	Lowest since peak
Lowest since peak	140	Oct. 28	1,610	
Daily incidence	330	Oct. 31	915	Daily incidence

According to this table, the tent camps followed the barrack camps in point of time but not in violence of outbreak.

COMPARISON BETWEEN CAMPS ACCORDING TO THE PROPORTION OF MEN ATTACKED

So much for the comparison between the tent and barrack camps. Turning attention now to the camps with regard solely to the proportion of men attacked, the camps may be thus divided into groups according to the proportion of men attacked with influenza: Group 1, from 30 to 50 per cent.; Group 2, from 20 to 30 per cent.; Group 3, from 10 to 20 per cent.; Group 4, less than 10 per cent.

Cody leads the first group with 49.8 per cent. of all troops attacked. Other camps in this group are Beauregard, 39.6 per cent.; Wadsworth, 38.6; Bowie, 38.1; Hoboken, 30.5, and Devens, 30.1.

Dodge has had 20 per cent. of all troops attacked and is the first in Group 2. Fourteen other camps fall in this group: Custer, MacArthur, Meade, Pike, Grant, Greene, Funston, Forrest, Travis, Logan, Lee, Hancock, Sheridan and Greenleaf.

Fifteen camps are contained in the third group. Fremont, Lewis and Wheeler, standing at the foot of the list, made up Group 4.

As to fatalities from pneumonia, Grant and Sherman are foremost. At Sherman, 61.3 per cent. of all pneumonia patients have died, and at Grant 45.7 per cent. While the case fatality has been still higher at Wadsworth, Forrest and Greenleaf, the total deaths reported by these camps have been but little more than one third of the total reported by Sherman alone. Special mention should be made of the situation at Wheeler. Only seventy cases of influenza have been reported, but a total of 361 cases of pneumonia and sixty-one deaths have occurred.

SEVERITY IN RELATION TO THE ORDER OF ATTACK

Some interesting facts are revealed when the camps are arranged according to the dates of attack, as shown in Table 5. In this table the camps have been arranged

TABLE 5.—CASES AND DEATHS AMONG TWENTY CAMPS ARRANGED ACCORDING TO THE CHRONOLOGICAL ORDER OF THEIR ATTACK

	Total Cases Infl.	Total Cases Pneu.	Total Deaths Pneu.	Per Cent. Attacked Infl.	Per Cent. Pneu. to Infl.	Per Cent. Deaths Pneu.
Five camps* attacked (Sept. 12-18)	46,589	7,969	3,000	21.4	17.1	37.6
Five camps† attacked (Sept. 22-24)	44,000	8,011	2,867	21.4	18.2	35.7
Five camps‡ attacked (Sept. 29-Oct. 1)	36,044	7,327	2,484	23.8	21.8	31.7
Five camps§ attacked (Oct. 3-11)	20,096	1,837	579	28.9	8.9	31.5

* Devens, Upton, Lee, Dix, Jackson.
† Grant, Taylor, Sevier, Pike, Newport News.
‡ Sherman, Dodge, Shelby, Custer, Travis.
§ Cody, Forrest, MacArthur, Wadsworth, Greenleaf.

in groups of five wherein are indicated camps reporting epidemics at about the same general stage of the pandemic. This table merits careful study.

It shows that the percentage attacked by influenza increased as the pandemic continued. This is most strikingly indicated in the group which was attacked from October 3 to 11. This group reported 28.9 per cent. of all troops stricken, as compared with 21.4 per cent. in the first group. The inference is that the disease increased in infectivity, or that as the pandemic spread it reached troops who were more susceptible. The latter is probably the fact.

The percentage of influenza cases that developed pneumonia increased as the pandemic proceeded, until the last group (attacked from October 3 to 11) was reached, when a notable drop from 21.8 to 8.9 per cent.

is indicated. This decrease is remarkable. It is probably due to the fact that all the cases of pneumonia that would occur had not yet developed in these camps. Cody, Forrest, Wadsworth and Greenleaf, all in the fourth group, were just passing the peak of influenza during the last four days of October.

It is noteworthy that the case fatality in pneumonia decreased with each successive group.

SEVERITY IN RELATION TO GEOGRAPHIC LOCATION

On considering the camps when grouped according to their location, it has been found that those in the Southwestern section, including the states of Texas, Arkansas, Louisiana and New Mexico, had relatively more men attacked by influenza than did any others. No camp in this group had less than 20 per cent. attacked, and three (Cody, Beauregard and Bowie) exceeded 30 per cent. For the period of the epidemic including October 31, Cody was first on the list of all camps, with 49.8 per cent. of all troops attacked. No explanation is offered for this remarkable fact.

An arrangement of the camps both according to their percentages of men attacked and geographic location is given in Table 6.

TABLE 6.—RELATIVE INCIDENCE OF INFLUENZA IN THE CAMPS ARRANGED GEOGRAPHICALLY

Per Cent. Attacked	South-western	Atlantic Coast	South-eastern	North Central	Pacific Coast
30 to 39	Beauregard Cody Bowie	Hoboken Devens	Wadsworth		
20 to 29	Dodge MacArthur Pike Travis Logan	Meade Lee	Greenleaf Hancock Sheridan	Custer Grant Funston	
10 to 19		Newport News Dix Upton Syracuse Eustis	McClellan Johnston Jackson Shelby Sevier Gordon	Taylor Sherman	Kearney

In the Atlantic Coast group, two camps had more than 30 per cent. attacked; two camps had from 20 to 30 per cent., and five had from 10 to 20. This group is second on the list when the prevalence of influenza is considered.

TABLE 7.—RELATIVE INCIDENCE OF PNEUMONIA FOLLOWING INFLUENZA IN THE CAMPS ARRANGED GEOGRAPHICALLY

Per Cent. Attacked	South-western	Atlantic Coast	South-eastern	North Central	Pacific Coast
30 to 40				Sherman	Lewis
20 to 30	Travis	Meade	McClellan	Taylor Grant Custer	
10 to 20	Beauregard MacArthur Pike Logan	Upton Syracuse Hoboken Devens Lee Dix Newport News	Sevier Greene Hancock Sheridan Jackson Gordon Johnston	Dodge Funston	Fremont
Less than 10	Bowie	Eustis	Wadsworth Greenleaf Shelby		Kearney

One camp in the Southeastern group exceeded 30, and three had from 20 to 30 per cent. of all troops attacked. Of the seven remaining camps of the group, six had from 10 to 20 per cent., and one had less than 10 per cent. The North Central group had no camp that exceeded 30 per cent. Of the five camps considered in this group, three had from 20 to 30 per cent. of men attacked, and two had from 10 to 20. The influenza appears to have been least prevalent in the Pacific Coast group. One camp had from 10 to 20 per cent. attacked, and two had less than 10 per cent.

Pneumonia following influenza was most prevalent in the North Central group of camps. Sherman, in this group, had 35.7 per cent. of all influenza cases develop pneumonia. Three camps had from 20 to 30 per cent.

Lewis, the only other camp to exceed 30 per cent., is in the Pacific Coast group. Two other camps in this group reported less than 20 per cent. Lewis is farthest north. The Atlantic Coast group had one camp with from 20 to 30 per cent. of pneumonias; seven with from 10 to 20 per cent., and one with less than 10. Rates distributed in the Southeastern group were: from 20 to 30 per cent. at McClellan; from 10 to 20 per cent. in seven camps; less than 10 per cent. in three camps.

TABLE 8.—RELATIVE CASE FATALITY OF PNEUMONIA IN THE REGIONAL GROUPS OF CAMPS

Group	More than 60 Per Cent.	40 to 60 Per Cent.	20 to 40 Per Cent.	Less than 20 Per Cent.
Southeastern	1*	2	4	8
North Central	1	1	2	2
Southwestern	1	1	1	2
Atlantic Coast	...	2	6	2
Pacific Coast	...	...	1	2

* Figure indicate number of camps.

The case fatality of pneumonia has been greater in the Southeastern, North Central and Southwestern groups than in the Atlantic and Pacific Coast groups.

TABLE 9.—AVERAGE PERIOD OF INCREASE, CREST AND RAPID DECLINE OF THE EPIDEMICS IN THE REGIONAL GROUPS OF CAMPS*

Group	Increase (Days)	Crest (Days)	Decline (Days)
Atlantic Coast	7	7	5
Southeastern	6	9	6
North Central	6	4	6
Southwestern	5	6	6

* Twenty-five camps are considered in this tabulation.

The increase has been most rapid in the Southwestern group: five days. The Southeastern and North Central groups reached the high point in six days. The Atlantic Coast group was on the increase for seven days. The average period of very high incidence was nine days in the Southeastern group. The shortest period of high incidence was four days, in the North Central group. The period of rapid decline was five days in the Atlantic Coast group, and six days in all other groups.

CASES OF INFLUENZA AND PNEUMONIA AND DEATHS IN THIRTY-EIGHT OF THE LARGEST CAMPS

Table 10 gives for each large camp the number of cases of influenza and pneumonia, percentages of troops attacked, percentages of deaths and the length of the epidemic in days. The camps have been arranged in the order of the percentage of men attacked in each.

Next, in Table 11, is given the total number of cases of influenza and pneumonia and deaths week by week from the beginning of the pandemic to November 1,

for all troops in the United States. This table shows the remarkable activity of the influenza pandemic, considering the camps as a whole. Within these weeks it had reached its acme and had begun to decline. Its

TABLE 10.—INFLUENZA, PNEUMONIA AND DEATHS IN THE LARGE CAMPS, PERIOD SEPT. 12 TO OCT. 31, 1918, INCLUSIVE

	Cases Infl.	Cases Pneu.	Total Deaths	Per Cent. Attacked Infl.	Per Cent. Pneu. to Infl.	Per Cent. Deaths Pneu.	Duration Epidemic in Days
Group 1							
Cody	2,337	252	46	49.8	10.8	18.2	28
Beauregard	5,252	1,007	422	39.6	19.2	41.9	36
Wadsworth	5,505	357	69	34.6	6.5	19.3	39
Bowie	4,692	119	104	38.1	2.9	89.8	32
Hoboken	13,563	2,280	794	30.5	16.9	34.9	42
Devens	13,268	2,286	794	30.1	17.1	34.9	49
Group 2							
Dodge	9,388	1,847	570	29.0	19.7	30.8	32
Custer	11,626	2,437	669	29.0	20.9	27.8	31
MacArthur	6,010	852	188	28.1	14.1	20.4	24
Meade	11,449	2,613	700	27.8	25.3	27.4	41
Pike	13,273	1,379	455	26.7	10.3	32.7	37
Grant	10,717	2,335	1,068	25.8	21.8	45.7	39
Greene	4,200	626	256	25.8	14.9	41.8	30
Funston	13,526	2,328	808	24.9	17.2	37.4	41
Forrest	2,807	33	22	24.9	1.1	66.6	25
Travis	8,470	1,742	168	24.7	20.5	9.0	30
Logan	3,137	763	16	24.6	12.4	3.8	41
Lee	11,298	1,919	672	22.9	17.0	34.6	43
Hancock	7,715	1,290	493	22.2	11.5	37.47	21
Sheridan	4,758	521	132	20.4	10.3	24.6	28
Greenleaf	4,747	343	263	20.3	7.2	75.2	20
Group 3							
Taylor	11,587	2,200	830	19.2	24.2	29.0	39
Dix	9,283	1,673	829	19.0	17.9	49.8	44
Jackson	7,560	1,114	362	18.9	14.9	31.3	43
Shelby	1,761	94	19	18.8	5.3	24.8	28
Syracuse	2,031	401	164	18.4	19.8	40.6	32
Sevier	4,526	896	319	16.3	19.7	35.7	38
McClellan	4,718	993	218	16.1	20.2	21.3	28
Eustis	1,745	67	10	14.8	4.0	16.2	36
Newport News	3,897	601	195	14.2	15.5	30.5	34
Upton	5,060	974	343	13.9	19.2	34.9	46
Sherman	4,789	1,717	1,058	13.5	35.7	61.3	32
Kearney	2,450	186	37	13.5	7.9	19.8	34
Gordon	4,155	626	192	11.3	14.8	30.4	42
Johnston	2,117	383	161	11.1	18.2	40.9	30
Group 4							
Fremont	2,347	392	122	9.8	16.1	31.2	33
Lewis	3,141	994	148	9.7	31.6	14.8	33
Wheeler	70	381	61	0.8	516.0	17.8	

subsidence was as rapid as its rise. In the space of less than two months it had come and gone, leaving only a few cases in some of the camps in its trail.

TABLE 11.—INFLUENZA AND PNEUMONIA CASES AND DEATHS REPORTED AMONG ALL TROOPS IN THE UNITED STATES FOR EACH WEEK DURING THE PERIOD FROM SEPTEMBER 12 TO OCTOBER 31, INCLUSIVE

Week Ended	Cases		Deaths	
	Influ.	Pneu.	Influ.	Pneu.
September 20	10,094	758	2	98
27	37,493	4,313	19	953
October 4	70,478	8,655	13	2,431
11	90,393	17,882	165	6,055
18	43,779	11,013	270	5,289
25	19,966	2,454	256	2,757
November 1	16,516	3,004	.....	1,173
Total	306,719	48,079	725	18,704

II. The Handling of the Epidemic

Action by the Surgeon-General's Office

The steps that were taken to combat the pandemic may be divided into those followed by the direction and guidance of the Surgeon-General's Office at Washington, and those that the camps themselves initiated. These steps may be collectively described as having fallen under three heads, (1) isolation, (2) sanitation and (3) education.

1. By isolation is meant any and all procedures by which infected could be separated from the susceptible persons. Included in this list were steps for the prevention of crowding, quarantine, head to foot sleeping, the separation of heads at mess, and the use of cubicles and masks.

2. Under sanitation may be included the cleaning and airing of barracks and bedding, the oiling of floors to keep down the dust, the boiling of mess-kits and many other procedures.

3. Education, always a predominant motive in the Army, was applied as never before to the prevention of disease among troops. The medical officers were taught what to expect in the way of symptoms and what principles of prevention to put into effect. The men were taught something of the principles of disease transmission and how to carry out their part of the work of prevention. Orders were issued, lectures given, and examples shown. Throughout, the line gave cordial cooperation.

The following paragraphs give a summary of the action taken by the Surgeon-General's Office, and a brief account of what an inspector from that office saw when he visited one of the large camps.

Soon after the pandemic disclosed itself, a recommendation was made by the Acting Surgeon-General to the chief of staff that further increments of the draft be stopped and that all troop movements between infected and uninfected camps be checked. On recommendation, the Adjutant-General ordered the setting aside of buildings to supplement the base hospitals during the epidemic and the furnishing of all necessary unskilled labor for the hospital needs. On September 24, instructions were sent to all camp surgeons regarding the symptoms, epidemic aspects and methods of handling the disease. Large numbers of medical officers and nurses were hurried to the camps. Instructions were sent to buy locally any medical supplies not promptly obtainable through medical channels.

Special sanitary inspectors from the Surgeon-General's Office visited many of the camps with a view to investigating the situation and proposing any improvements that appeared possible in the methods of handling the situation. When thought necessary, camps were quarantined against the civil communities or vice versa, as appeared desirable to the Acting Surgeon-General in order to protect the troops or civilians or both. There was issued a set of a dozen rules on personal hygiene designed to aid the individual in maintaining health during the emergency.

Report of an Inspection of a Camp

Under date of September 30, there was sent to camp surgeons, surgeons of recruit depots and independent stations, department surgeons and officers in charge, Air Service Division, the report of a sanitary inspector from the Surgeon-General's Office to show the steps taken at one camp to handle the situation in a satisfactory manner and the recommendations for further improvement made by the inspector. The following abstract is taken from that report.

It should be stated that the policy of the Surgeon-General's Office has been to leave many of the details of camp management, so far as relates to sanitary and medical matters, to the camp authorities on the theory that they alone can be perfectly familiar with the local needs and resources, giving such aid in the way of recommendations as a general knowledge of the situation, and the correct principles to be observed, permit.

The inspection was made two weeks after the epidemic started. The epidemic was at its height: about one in ten of the command was sick with influenza. Of this number about a third were in hospital; the rest were in their quarters. There were 536 cases of pneumonia; there had been 253 deaths.

The report stated that there was no overcrowding. The barracks were marked with their maximum capacity on the basis of 45 square feet of floor space per man, and this was not exceeded. About one fourth of the entire number of troops was under canvas, five men to a tent. The men slept with head and feet alternating to increase the distance between heads as much as possible. In some of the barracks the "cubicle system" was contrived by means of shelter tents suspended between the beds in order to make the separation of the men more complete.

The heating arrangements were in operation in all the buildings, and the freest possible ventilation was enforced. Beds, bedding and clothing were kept outdoors all day, weather permitting. The tents were furled daily. All floors had been oiled once, and some twice, since the epidemic started. Overcoats and woolen underwear had been issued. There was ample bedding. The men who were not sick were kept outdoors all day. An officer was on duty in each barrack day and night.

The camp and barracks and messes were clean. Ample steps had been taken to eradicate flies. Dishes were boiled after each meal. When individual mess kits were used, they were washed in boiling water after each meal and actually boiled at intervals. There were no common drinking cups in use. Dust filled the air on the day of the inspector's visit and was very annoying.

Two thousand negroes who had arrived at camp from civil life between two and five days earlier had been put in an area by themselves and efficiently quarantined, the result being that no case of influenza had appeared among them.

THE HOSPITAL FACILITIES

The capacity of the base hospital had been increased by fitting up a group of eighteen company barracks, fortunately empty, and placing this annex under the base hospital administration. The annex was opened about ten days after the epidemic started, and had a capacity of 1,040 patients. It was described as in excellent condition. Each patient had 100 square feet of floor space; quartermaster cots were used with straw mattresses and the soldiers' own blankets. The Medical Department supplied sheets, pillows, pillow cases and pajamas. There were one female nurse and 186 enlisted men from the line on duty; 100 more nurses were expected. There were 977 patients; of these eighteen had pneumonia.

Ambulant cases, that is, influenza patients whose temperatures had been normal for from twenty-four to forty-eight hours, went out of their particular building to the nearest mess for meals. Men with abnormal temperatures were not allowed to go out to the lavatories. Influenza patients in hospital were being kept from seven to eight days; the rule was to keep them till the temperature had been normal four days.

The attendants wore masks, but cubicles had not been installed. The order and system were reported by the inspector as most commendable.

Further to supplement the base hospital, there was a second group of company barracks. These were run as field hospitals. Their capacity was 700 patients. The conditions here were not quite so good.

The base hospital was stated to be in excellent condition. There were 2,800 patients here, about 300 of whom were venereal and in tents; about 400 others were to be transferred to the annex three quarters of a mile away. There was only slight crowding. The porches were occupied by beds. All pneumonia patients in wards were cubicled, but not those on the porches, though the beds were close together. The influenza patients were not cubicled because of lack of sheets, but there was no serious shortage of supplies. At the outset the camp surgeon directed the camp supply officer to purchase whatever was necessary.

There was one ward full of sick nurses, of whom thirty were said to have pneumonia. One nurse, one dietitian, one medical officer and one dental officer had died. The patients were arranged heads and feet alternatively. The attendants were all masked. The ventilation was ample. The supply of medical officers, nurses, laboratory workers and enlisted men, Medical Department, was being increased. Numerous circulars relative to the prevention of influenza and its complications had been issued by the camp authorities, and these were very complete and satisfactory.

THE INSPECTOR'S RECOMMENDATIONS

In his reports to the Acting Surgeon-General and to the commanding general of the troops, the inspector described the whole situation as well handled. Nevertheless it was recommended among other things that no soldiers be returned to duty after influenza until at least ten days after their temperature had become normal; that all influenza patients should have at least 100 square feet of floor space and be screened from each other, the idea being to prevent pneumonia, and that no influenza patients be treated in barracks that were in part occupied by healthy soldiers.

It was recommended that both in barracks and tents the cubicle system be adopted for all healthy men by the use of the shelter tent supported at one corner of the bed by a stick or hung from the ceiling by wire, and that mess tables be so arranged that the men should sit either on one side of the table alone, or else that the occupants of the two sides of the table be separated by a screen of cheese cloth suspended above the middle of the table.

It was recommended that the quarantine of the camp against the surrounding country, and of the surrounding country against the camp, be continued and that no one be allowed to enter or leave the camp except the friends and relatives of the seriously ill; that as soon as the epidemic disappeared the population of the camp be reduced so as to be placed on the basis of 50 square feet per man; that improvised corridors covered with canvas be provided to connect the lavatories with the barracks which are used for hospital purposes; that steps be taken to prevent men from crowding together at post exchanges and about stoves in barracks; that the laying of dust in camps be expedited, and that great care be taken in disinfecting clinical thermometers.

Some of the recommendations made were already contemplated by the camp authorities or were under way, but not yet completed, the inspector stated, on account of lack of time or material.

III. The Cause of the Outbreak

Character of the Infection

It is usually impossible accurately to trace the origin and paths of spread of a pandemic like the present one. The popular demand that this be done is natural but unreasonable. It rests on the supposition that disease can be run down like a criminal; that visible and recognizable traces are left by it. This is not always true. The pursuit is often so illusive that deductions stronger than inferences are not warranted regarding it. With a disease like influenza, the proof seldom amounts to complete demonstration. The routes of infection are generally hidden beneath a mass of imperfect observation, wrong theory and illogical deduction. Under the circumstances the best that can be done is to follow out the larger aspects of the question.

The present pandemic offers no exception to this rule. In the minds of thousands of persons the disease is hopelessly confused with minor respiratory diseases that have for years been loosely called influenza infections. Many do not know "Spanish influenza" when they see it, the symptoms being by no means easily recognized by those who have never had occasion to deal with it. And to the best informed there are many things about influenza that are shrouded in mystery. Consequently all that will be attempted here is the recording of some apparently well established facts and the drawing of some apparently safe inferences, leaving to others and especially to later investigators the task of interpreting the pandemic more fully.

These remarks seem to be called for by a demand for an explanation of the way in which the pandemic spread from one organization to another in a camp, from one camp to another, and from the camps to the towns and vice versa.

The Means of Transmission

First, it is necessary clearly to understand that the influenza to which attention is now called is a specific infective disease like cholera, typhoid, smallpox and others, and it has, at all times and in all places, shown a uniformity in its configuration and in its cause such as almost no other infectious disease has. These words were written nearly two generations ago by Hirsch, but they seem to have been forgotten. They were forgotten in England in 1889, when the pandemic of influenza broke out in that country and for some time failed of recognition. They were forgotten in the United States, where for nearly thirty years no sensational outbreak of the disease had occurred.

The disease is carried from place to place by persons, not things or by the general atmosphere, as was once supposed. Its rapidity of spread is due to its great infectivity, short period of incubation, missed cases, and absence of timely precautionary measures. An epidemic does not easily start, but once the flame is well kindled a conflagration occurs which cannot be stopped. The epidemics stop themselves. This they do either by an exhaustion of the susceptible material, by a reduction in the virulence of the causative agent, or both.

The disease has been taken into camps, from camp to camp, from camps to towns, and from towns to towns, by people. It cannot be said to have been proved that this is the only way in which it has been transmitted, but there seems no reason to look for more probable ways—according to modern theories, all respiratory infections are conveyed by contact. The travel and mingling that occur under ordinary circumstances seem to be quite enough to account for the facts.

In theory and practice influenza is preventable, but it is very difficult to control under municipal and military conditions. It rarely happens that the necessary measures—chiefly based on the principle of isolation—are taken in time. In the present pandemic the disease, on more than one occasion, has been confined to certain wards of hospitals to the exclusion of others. It has visited some camps and some organizations more severely than others. It is not possible as yet to state to what extent it has been actually controlled in the camps.

The pandemic may truly be termed an epidemic of epidemics. Like all great outbreaks of this most infectious of communicable diseases, the epidemics have occurred with electric suddenness, and, acting like powerful, uncontrolled currents, have produced violent and eccentric effects. The disease never spreads slowly and insidiously. Wherever it occurs its presence is startling. A large proportion of the men in one company may be infected while those in the next company may entirely escape.

How far the pandemic will spread will apparently depend only on the epidemic vagaries of the disease and the amount of material on which it can feed. It is too early to foretell the end or to measure the damage that will be done before it diseappears. Apparently it is destined to have a world wide distribution.

It is not improbable that the pandemic may disappear from the United States as rapidly as it came, although most persons hold the opinion that its final disappearance will be gradual, the extinction of the disease being postponed for many months. It is already practically gone in most army camps. It may or may not return. In the pandemics that sweep over the earth at long intervals, recurring waves of greater or less degree, separated by some months, commonly occur.

The Infective Agent

The causative agent is generally believed to be the bacillus of Pfeiffer; the means of transfer, droplets of moisture from the mouth and objects recently contaminated by the buccal and nasal secretions of those who harbor the virus. It is a fundamental assumption that influenza is produced when, and only when, material from the mouth or nose of infected persons gets into the mouth or nose of some one who is susceptible. As is plainly recognized in respect to intestinal infections, the hand probably plays an important part in the transmission of influenza. Coughing and sneezing help greatly to spread the infection.

It has long been known that interchanges of bacteria occur commonly from mouth to mouth under ordinary conditions of social intercourse. Most of these organisms are harmless under normal conditions of health. That their capacity for harm is sometimes increased, sometimes reduced, according to various circumstances, is highly probable. What these circumstances are is conjectural.

The Pfeiffer bacillus is no stranger to America; it was known to be rather commonly present in healthy persons before the pandemic. To account for the virulence that seems to be possessed by this organism now it has been suggested that (1) something must

have happened to increase its virulence, or (2) a new and more active strain of it appeared, or (3) the susceptibility of those attacked became reduced. Some persons hold that the causative agent has not been discovered and that the Pfeiffer bacillus is not really responsible for the disease. Some even go so far as to say that the disease is not influenza. With these disputed points ti is not necessary to deal here. All three of the numbered propositions in this paragraph are accepted as probable by the present writer.

The conditions that govern susceptibility to influenza are not understood. Good general health, absence of fatigue and of cold and hunger are methods of prevention which have long been advocated by many and which in spite of scientific criticism still have much to recommend them. Whatever conduces to low bodily tone is believed by most persons to favor infection. Some, however, hold that specific immunity either does or does not exist and that wet feet, insufficient bedding, chill, hunger and fatigue have nothing to do with susceptibility.

Vaccination against pneumonia is practicable; but such preventive treatment is in the experimental stage as respects influenza. As to natural immunity, one attack is believed to protect against another, and some people seem to be immune without ever having experienced an attack.

The weather has always been supposed to exert an influence on influenza—the very name is derived from the effect which extraterrestrial conditions were supposed to exert on it. But although there has been a great deal of study of this matter from early times to the present, little is known concerning it. It is possible that the weather this fall has aggravated the influenza and contributed to the incidence of the pneumonia. The pandemic appeared after a very hot season had suddenly been succeeded by a very cold one. After the pandemic was well started, a particularly long period of fine weather occurred. More important, perhaps, the weather also precipitated a large amount of other respiratory infections, such as always become prevalent at this season. There is little doubt that many of these cases have been mistaken for influenza.

The epidemics which occurred in the spring of 1918 were like those that took place in the fall, except that the disease was milder and there was less pneumonia in the spring. Until the late summer the influenza reported from Europe was of a relatively mild type. It seems to have been as infectious there as it is here. Reports coming from all parts of Europe indicate that the percentage of persons attacked was about the same as in America.

IMPORTATIONS OF A VIRULENT STRAIN

The origin of the influenza pandemic now sweeping the world is usually attributed to Spain. It is doubtful, however, whether the disease was first seen in Spain or the United States. Some have held that it was brought to the Western hemisphere from China.

Early in the spring of 1918, a disease of unknown origin is reported to have appeared in Spain with the symptoms of sudden onset, severe headache, pain in the back, fatigue and perhaps nausea. After three or four days the patient recovered. Influenza appeared in America early in March, being reported from Fort Oglethorpe, March 18, and from some other parts of the United States much earlier.

In the latter part of March the disease appeared in the American Expeditionary Force, in the French and British army, and in the civil population. About 25 per cent. of all who were exposed to the disease were attacked. The death rate was low. The first cases in Germany were among troops that fought with a (presumably infected) American regiment in July.

In September, the disease assumed a more serious character, being complicated with bronchopneumonia and septic pneumonia with a high mortality in some epidemics. The disease is said to have become more severe in Spain as the season advanced.

The first that was seen of the highly virulent infection in America was among shipping. During July and August a number of vessels plying between Europe and America experienced intense outbreaks of what was called "Spanish influenza." That patients with the disease were being brought into the country in this manner was stated in the daily press and in official reports in July.

Many patients were admitted to various ports of the United States from ships during June, July and August. The Navy has pointed out that the British steamship *Exeter*, which arrived from Liverpool, at Philadelphia, June 22, reported at quarantine that twenty-seven Lascars and an English quartermaster were ill with pneumonia. These patients, who were described as in a desperate condition, were removed to hospital. The opinion was reached that they had influenza.

July 7, the New York papers described an outbreak of "Spanish influenza" which had occurred on a troop ship returning to America. The vessel was compelled to put back into port, there not being enough of her crew left to handle her. This vessel was the Cunard Liner *Khiva*, which had left Liverpool, June 15. Six days later six of the crew were taken suddenly ill. Two days later the number was increased by fifteen. Next day there were fifteen more cases. The ship then, pursued by a submarine, put into Halifax. Ten days later it proceeded to New York. There were no deaths.

August 18 and subsequently, the New York papers described outbreaks of influenza on the *Rochambeau* and the *Nieuw Amsterdam*. On one of these vessels, twenty-one cases of influenza had occurred. Some of them developed pneumonia and were sent to St. Vincent's Hospital. According to the New York *Times* of July 18, 1918, influenza had been coming to New York on vessels since the early part of June.

According to a Navy bulletin, two steamships from Norway and one from another Scandinavian port arrived in New York, August 14 and 15, having a number of patients ill with influenza.

The Surgeon-General of the United States Public Health Service reported a sharp outbreak at Fort Morgan, near Mobile, Ala., during the month of August. At the same time a steamship arrived at Newport News with substantially the entire crew infected. The *Bergensford*, which arrived in New York, August 12, had during the voyage 200 cases of influenza.

The foregoing, which makes no claim to being a complete list, is sufficient to show that influenza was brought to the United States and to various ports on vessels from Europe through the whole summer. In some outbreaks there was a great deal of a fatal pneumonia.

The patients from the vessels were sent ashore and soon mingled with the civilian populations. There were thus scattered rather widely along the Atlantic seaboard sparks from which the pandemic not improb-

ably arose. How abrupt were the appearance and spread is not yet perfectly clear. In arriving at an understanding of this point it is necessary to distinguish between the sudden appearance of the disease and its sudden recognition.

There is another and less definite explanation of the pandemic offered. It is less an explanation than a guess. The same kind of guess probably has been made ever since epidemics first visited the earth. It is that the marked virulence noted in the recent pandemic is due to the weather. The supposition is that in some way not determined, the mild influenza of last spring became greatly intensified this fall.

That the disease appeared suddenly in the camps and ran a meteoric career is clear enough. Evidence presented in Table 12 indicates that its appearance and course in civil life was somewhat the same. This table, compiled partly from data supplied by the Census Bureau, shows the dates when marked increases occurred in the number of deaths from pneumonia in cities and camps in various parts of the country. From the table it would appear that the increase in the incidence of pneumonia among the principal cities of the United States preceded the increased incidence among the Army camps. If this is so, it is to be inferred that the camps derived their infection not from one another but from their immediate environment.

This table shows how the pandemic spread across the continent. Both cities and camps in the Atlantic Coast groups were included. The states of Massachusetts, New York, New Jersey, Maryland and Virginia were attacked first. The first record of the spread of the pandemic near this group was the increased pneumonia death rate at Pittsburgh, Chicago and Minneapolis, cities of the North Central group, during the week ended September 28.

During the following week (ended October 5) pronounced epidemics occurred in five of the Army camps of the North Central group (Custer, Funston, Grant, Sherman and Taylor). During this week epidemics were reported by both cities and camps in the Southeastern and Southwestern groups, and in the city of Los Angeles of the Pacific Coast group.

It was two weeks later (week ended October 19) that the camps of the Pacific Coast group reported the first marked increase in deaths from pneumonia.

Table 13 gives the number of deaths from pneumonia reported in forty-six cities from September 14 to November 2. It shows the rise and progress of the pneumonia, and, so far as that disease is the shadow of the influenza, it affords evidence of the case incidence of the whole pandemic of the larger cities. No reliable evidence of the prevalence of influenza in the cities exists. This statistical table is based on figures contained in a special report of the Bureau of the Census, Washington, D. C., on deaths from pneumonia, and appended to the regular weekly report of that bureau for the week ended Nov. 2, 1918.

The special report covers the eight weeks period from September 8 to November 2, inclusive. Marked increases in the incidence of pneumonia deaths in the different cities are indicated by the totals for the week being printed in boldface. A weekly incidence which is more than double the average weekly figure for not less than two weeks preceding (when these figures are available) is considered a marked increase in this memorandum.

TABLE 12.—MARKED INCREASES IN DEATHS FROM PNEUMONIA IN THE PRINCIPAL CITIES AND ARMY CAMPS IN THE UNITED STATES FOR THE PERIOD FROM SEPTEMBER 8 TO OCTOBER 25, INCLUSIVE

Date Week Ending	Atlantic Coast		North Central		Southeastern		Southwestern		Pacific Coast	
	Cities	Camps	Cities	Camps	Cities	Camps	Cities	Camps	Cities	Camps
Sept. 14	Boston									
Sept. 21	Lowell New York	Devens Dix								
Sept. 28	Cambridge Worcester Jersey City Philadelphia Providence Washington	Lee Upton Syracuse Humphreys	Pittsburgh Chicago Minneapolis							
Oct. 5	Baltimore Buffalo Fall River Newark Richmond Syracuse	Meade Hoboken Eustis Newport News	Cincinnati Indianapolis	Custer Funston Grant Sherman Taylor	Birmingham	Beauregard Sevier Logan Hancock Gordon	Denver	Pike	Los Angeles	
Oct. 12	Albany Rochester		Kansas City Louisville Milwaukee Omaha St. Paul St. Louis	Dodge	Atlanta New Orleans	Greene McClellan Wadsworth Jackson Johnston Greenleaf		Travis Bowie	Oakland Seattle	
Oct. 19	New Haven		Cleveland Columbus Dayton Toledo			Sheridan		MacArthur Cody	San Francisco Spokane Portland	Fremont Lewis

COMPARISON WITH OTHER PANDEMICS

It is interesting to compare the present pandemic with others, but the comparison cannot be close. It is impossible to say how severe were some of those which are recorded in history for the reason that statistical data concerning them are meager and imperfect. It is said that in 1889-1890 no less than 25 per cent. of the population was attacked in London; 33 per cent. in Antwerp; 39 in Massachusetts, and 50 in Paris. In 1823-1833 about 40 per cent. of the population of Paris is believed to have been affected. In 1872, three quarters of the population of London and some German cities were supposed to have suffered. The records of earlier visitations are more obscure.

In the 1918 pandemic, about 20 per cent. of the soldiers in the camps were attacked. This seems rather a large proportion for the whole country or, indeed, for the cities, and yet it may not be far amiss. By the

time the disease has finally disappeared, it will have spread somewhat beyond its present limit; and if the patients that recovered in the Army are added to those of the full pandemic, the proportion of the whole population affected during this year will be found to have been still greater.

The total number of deaths resulting from the present pandemic will never be known. Observers of pandemics in other years have pointed out that influenza is a more fatal disease than is commonly understood, the unsuspected excess being due chiefly to lung and heart complications that do not promptly manifest themselves. Thus, although the number of deaths directly attributed to influenza in England and Wales

TABLE 13.—DEATHS FROM PNEUMONIA REPORTED BY THE PRINCIPAL CITIES OF THE UNITED STATES FOR THE PERIOD SEPT. 8 TO NOV. 2, 1918, INCLUSIVE

City	Week Ended							
	September			October				Nov.
	14	21	28	5	12	19	26	2
Albany	2	0	2	2	11	22	34	24
Atlanta	7	.....	4	7	28	42	86	
Baltimore	7	5	19	67	371	768	600	294
Birmingham	2	2	4	11	9	12	19	15
Boston	27	90	175	225	177	139	92	36
Buffalo	8	12	16	41	98	125	134	90
Cambridge	7	4	23	27	15	13	4	6
Chicago	15	24	74	246	476	863	826	456
Cincinnati	5	4	6	18	30	21	19	14
Cleveland	5	8	10	15	22	64	106	153
Columbus	1	4	6	10	13	28	21	9
Dayton	1	1	2	5	11	26	43	31
Denver	3	3	9	9	25	19	24	19
Fall River	0	5	6	11	9	23	10	
Grand Rapids	2	1	1	3	7	6	15	
Indianapolis	3	6	10	26	16	110	97	
Jersey City	2	6	21	80	144	225		
Kansas City, Mo.	5	.....	10	11	21	55	75	55
Los Angeles	9	.....	2	14	41	31	49	53
Louisville	3	9	4	14	77	154	157	60
Lowell	1	3	16	64	104	85	65	19
Memphis	.....	.....	.....	.....	67	132	127	40
Milwaukee	4	5	13	15	94	83	126	90
Minneapolis	2	.....	11	13	11	10	22	
Nashville	2	.....	3	5	29	47	27	13
Newark	0	6	6	22	70	129	137	138
New Haven	0	2	4	6	9	22	29	
New Orleans	5	.....	3	17	49	177	223	117
New York	74	98	145	434	1,142	2,000	2,251	1,855
Oakland	4	0	2	2	11	21	27	
Omaha	1	.....	2	7	22	22	7	
Philadelphia	20	32	78	307	988	1,644	1,182	467
Pittsburgh	12	17	38	57	102	161	457	527
Portland	4	.....	5	3	6	26	11	14
Providence	4	10	22	30	61	62	48	32
Richmond	4	2	3	30	62	78	48	
Rochester	1	1	7	6	22	26	28	23
St. Louis	12	13	20	25	49	78	75	67
St. Paul	3	.....	3	1	20	11	10	
San Francisco	6	14	15	15	19	42	58	39
Seattle	4	2	4	6	16	22	7	17
Spokane	2	.....	1	1	2	6		
Syracuse	0	.....	.....	14	3	20	22	
Toledo	2	0	5	3	7	19	43	41
Washington, D.C.	10	.....	17	57	101	96	61	26
Worcester	7	9	18	69	58	48	22	14

in 1890 was reported as 4,523 per million, the registrar general, by analysis of the vital statistics for the period, stated that the number of deaths directly or indirectly attributable was 27,074 per million, or nearly seven times the apparent rate. In London the general death rate was increased by more than 20 per cent., in Berlin by more than 60 per cent., and in Paris and Brussels by more than 100 per cent.

No records now available show that there has ever been so much immediately fatal pneumonia as in the present pandemic. If to the known deaths are added an allowance based on the registrar general's estimate quoted above, the magnitude of the catastrophe appears truly appalling. Both in and out of the camps there will have been fewer cases of influenza and far more deaths than the records indicate. The cases will be overestimated — the deaths will not all be told.

BARRACK LIFE AND RESPIRATORY DISEASE

SOME EPIDEMIOLOGIC OBSERVATIONS ON THE RECENT OUTBREAK OF INFLUENZA *

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The influenza epidemic through which we are passing has been responsible for 17,000 deaths among our troops in this country, and the toll among the civil population already exceeds 200,000 lives. This is a far greater disaster than has befallen the United States in many decades. We have come to look on the war in Europe as one of the greatest destroyers of human life in the history of mankind. Yet in the brief space of a few weeks more deaths have been caused by an acute disease than have occurred on all the battlefields in any similar period, notwithstanding that millions on millions of soldiers have been involved.

Among the civil population of New York, 50 per cent. of all deaths occurred between the ages of 25 and 45. From figures obtained from Boston, Philadelphia, Baltimore and other sources, it can be predicted that similar percentages will probably obtain in many other communities. The deaths in cities among the sexes appear to be about equal, although there was a slight excess among females in Boston. Thus, 100,000 persons between the ages of 25 and 45 have succumbed to respiratory disease. This means that we have already lost among civilians 50,000 men in the prime of life. This is a serious drain on our man power.

Viewed from another standpoint, it is apparent that it is more dangerous to be a soldier in peaceful United States than to have been on the firing line in France. From the statistics so far available, the death rate in the military camps is higher than among the civil population, even in similar age groups. The mortality in New York and Chicago, for instance, shows that the death rate in the Army is more than double that of the civil population of the same age group. There is also the possibility that when allowances are made for the fact that defectives have been eliminated from the Army, and that these poor "risks" swell the civil death list, the corrected margin will be still further increased in favor of the civil population.

A study of the Students' Army Training Corps and of vocational students shows that as living conditions approach those in the Army, so does the death rate approach that of the Army. Further observation shows that with few exceptions the mortality rate from influenza and pneumonia bears a very close relationship to the number of persons housed and living under barrack conditions. That is, when large numbers of persons live, sleep and mess together in one room, the death rate is almost invariably higher than among similar groups living under civilian conditions. In other words, the more nearly the housing, eating and congregating conditions in the Students' Army Training Corps resembled those which obtain normally at colleges or such as exist in civil communities, the death rate was correspondingly lower. The death rate among college students living in their customary way was about the same as that of the towns in which they were located.

* The data assembled in this paper are based on reports to Nov. 9, 1918, but subsequent deaths are more likely to emphasize the difference between civil populations and "barrack" populations than otherwise.

Men in the military camps of the United States are housed in barracks with a capacity of from fifty to 150 men in a room. Assuming that the total number of troops did not reach over 1,500,000, and that 17,000 deaths have occurred, this gives a death rate of 11 per thousand for the period of the epidemic. For instance, in Boston, which is one of the cities hardest hit by the epidemic, 591 deaths are reported in the male age group of from 20 to 30. The United States Census Bureau estimates that in this age group there are 78,524 males. This would give a death rate of 7 per thousand. The death rate among all ages in Boston from the beginning of the epidemic until November 2 was 5 per thousand. Figures from Washington and Baltimore show that approximately the same proportion obtained. In the majority of Western cities the civil mortality has been very much lower than in the large Eastern cities. In Chicago the rate among the male age group of from 20 to 30 was 4 per thousand, or about a third of the Army rate. It will thus be seen that the death rate among the troops has been two or three times as great as that among civil populations of similar age groups. It is noteworthy that in many of the large Western cantonments the death rate was as high as in Eastern cantonments, and even higher, so that climatic influence does not explain why the Western cities suffered less than the Eastern cities.

TABLE 1.—DEATH RATES AMONG GROUPS OF INDIVIDUALS HOUSED UNDER BARRACK CONDITIONS

Organization	Population	Deaths	Rate per 1,000
Michigan Agricultural College	1,600	12	7.5
Wisconsin University vocational students:			
First group	600	6	10.0
Second group	550	6	10.9
Minnesota University:			
Fort Snelling group	4,985	54	10.8
Vocational group	4,000	72	18.0
Feebleminded institution, Orient, Ohio	600	35	58.3

The death rates at representative colleges where vocational students and the Students' Army Training Corps were housed in barracks are as follows: At the Michigan Agricultural College, which has 1,600 students, there were twelve deaths, or 7 per thousand. On the other hand, among 3,100 students at the University of Wisconsin, of whom only a small percentage were housed in barracks, the death rate was only 3.8 per thousand. In the same university, however, among 600 vocational students who were housed in approved Army barracks, there were six deaths, or a rate of 10 per thousand. The same experience was repeated at Wisconsin in a second group of vocational students. At the University of Minnesota we have the Fort Snelling group, which consists of the students of the university, the hospital attendants, and the guards, the great majority of whom live under barrack conditions. In this group of 4,985 there were fifty-four deaths, or a rate of 10 per thousand. Among the 4,000 students in the vocational group at the University of Minnesota there were seventy-two deaths, or a rate of 18 per thousand. These men were housed in a big automobile building of many stories, and they slept many hundreds in a room. In accordance with previously accepted standards of cubic air space, floor area and ventilation, the conditions were good. At the institution for the feebleminded at Orient, Ohio, among 600 inmates who were housed from twenty-four to 160 in a room, there were thirty-five deaths, or a rate of 58 per thousand.

TABLE 2.—DEATH RATE AMONG SIMILAR AGE GROUPS IN CIVIL COMMUNITIES

City	Population Male Age Group 20 to 30	Deaths Influenza Pneumonia	Rate per Thousand
Philadelphia	176,137	1,558*	8.9
Baltimore	59,965	461*	7.7
Boston	78,524	591†	7.5
New York	573,749	2,420*	4.2
Chicago	259,668	1,035*	4.0
Milwaukee	56,685	63*	1.1
Army	1,500,000	17,000	11.0

* Number estimated from United States census returns up to Nov. 9, 1918.
† Boston City Health Department, up to Nov. 2, 1918.

It is proper to mention that there were many Students' Army Training Corps at a number of the colleges where a large percentage of the students were housed in barracks, and either no deaths occurred or there was a very small percentage. But it is also true that in such instances pneumonia was usually not introduced. Similar conditions, of course, obtained among the Army camps. The rate varied from the very low rate at Camp Wheeler, for instance, to camps like Sherman, where the rate reached 30 per thousand, so that the conditions of comparison between the military and the civilian population in this respect still remains the same.

From the accompanying tables the lower rate among civilians will at once be apparent. It has long been recognized that quartering men in barracks involves considerable risk of a high mortality from respiratory diseases. Classical examples are those among the men quartered in barracks in Panama and among the miners similarly housed in South Africa. The 10,000 or more deaths that occurred from pneumonia among our troops last winter is further evidence. The high mortality rate in the Great Lakes Training Station furnishes another excellent example. Experience among the members of the Students' Army Training Corps who were quartered in barracks or under semi-barrack conditions in the recent epidemic of influenza shows a higher death rate. It is most interesting to observe that these high death rates occurred in barracks where the cubic air capacity and the square floor area approximated the standard set for approved barracks, namely, a minimum of 500 cubic feet of air space and 50 square feet of superficial floor area per person, and that on the whole the ventilation was good.

TABLE 3.—DEATHS AMONG ALL AGES IN A NUMBER OF TYPICAL CITIES

City	Population	Deaths* Influenza Pneumonia	Rate per Thousand
Milwaukee	453,381	614	1.4
Indianapolis	289,577	427	1.5
Los Angeles	568,495	1,214	2.1
Louisville	242,707	610	2.5
New York	5,737,492	19,357	3.4
Providence	263,613	994	3.8
Boston	785,245	4,355	5.5
Baltimore	599,653	3,685	6.1
Philadelphia	1,761,371	12,665	7.2

* United States Census Reports up to November 9, 1918.

It is my purpose in this paper to note the mortality rates among groups of peoples housed under different conditions. No explanation will be attempted as to why death rates are higher among persons housed in barracks. However, it may do no harm to point out that experience based on laboratory investigations in our Army hospitals shows that in large wards the bacterial flora in the throats of the patients tended to become equal. In other words, when individuals were admitted who had different bacteria in their respiratory passages from those already in the ward, these organisms could soon be found in the others. The facts reveal a lower mortality among those housed one

or two in a room. However, there may be other factors involved. For instance, in large Philippine prisons it has been the custom for the past ten years to disinfect the mess kits and hands before eating, because there was much reason to believe that it reduced the disease incidence.

In view of the present high state of infectivity of respiratory diseases, it is not unreasonable to assume that unless better housing conditions are provided wherever men live in barracks, a morbidity and mortality rate will obtain approaching that of the Army quartered in barracks last winter. One might well be led to ask, Is there a military or other emergency that would justify so great a sacrifice of life? It must be remembered that in addition to the humanitarian consideration, a heavy economic loss will be encountered. The college man in the Students' Army Training Corps, for instance, represents the period of life at which the greatest outlay has been made, with scarcely any return on the investment of education. Soldiers and workmen are great financial assets. But there is even a more serious factor to be considered. Men living in barracks are widely scattered throughout the United States, and many groups are in intimate relationship with our large, populous centers, to which they will, unless corrected, transmit dangerous communicable diseases like pneumonia, cerebrospinal meningitis, septic sore throat, diphtheria and measles, thereby becoming a serious menace to the health of the civil community. Thus, much preventable and unnecessary disease would be caused. It would seem well to consider plans for "debarracking" aggregations of men throughout the United States. As matters stand, those responsible for retaining men in barracks are assuming a heavy responsibility.

SUMMARY

1. Experience in this country since the war began has shown that soldiers who live under barrack conditions have a high morbidity and a particularly high mortality rate from respiratory disease.

2. The mortality rate among the Students' Army Training Corps in the recent outbreak of so-called influenza was higher than among students who lived under prewar conditions.

3. Civilians throughout the country had a much lower mortality rate than soldiers in cantonments and students in barracks at colleges and universities.

4. Other conditions being equal, the mortality was higher among groups of men who slept many in a room. There may have been other factors responsible than sleeping in the same room, as, for instance, infection through close contact at meals, infected mess kits and hand infections.

5. The high infectivity from respiratory disease at the present time makes it justifiable to require men to live under barrack conditions only in cases of extreme emergency.

6. Patients with different respiratory infections should not be quartered in the same ward or room, even in the presence of heretofore accepted standards for ventilation. If emergency conditions make such a course necessary, patients and attendants should when practicable wear approved masks or be otherwise protected.

7. Finally, sanitary art has not arrived at the point at which it can adequately safeguard the lives of men against respiratory disease who live under barrack conditions.

MUSTARD (YELLOW CROSS) BURNS

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Recent attacks have shown that instead of the former gas cloud offensives being employed, the so-called "mustard gas" shells have been used to play an important part in annoying the enemy. A burn of either the first or the second degree with some of the retained irritant is produced. The liquid may be splashed on the part or the vapor reach the skin sufficiently to produce a redness and some hemorrhage. The real burn may be suspected but not appear until twenty-four hours.

This irritant is called in German literature by several names, and "yperite," or dichlor-ethyl-sulphid chemically. It vaporizes on the explosion of the shell and then does the damage to those exposed, but its effect is not much appreciated before four hours. Besides the skin manifestations there may be, after a day, vomiting, cough, hoarseness and pain. The eruption itself may appear as punctate, rose-red areas, simulating a vesicular eczema, or at times desquamation. The fluid contents may coagulate and become infected. Moreover, the fluid sometimes spreads, and there can be quite a large area of burning and itching. Ulcers sometimes form and persist for six weeks. As a rule, pigmentary changes result. Only rarely is there loss of hair; this is seen best in the lower animals.

Some individuals seem more susceptible to its severity than others. Occasionally a physician handling the patients will be infected from the contents of the blebs. Those who are sweating profusely are liable to suffer a nettle rash eruption. Furunculosis results at times. The chemical seems to be absorbed through the layers of the skin. A splash into the eye may destroy this organ, though this has occurred rarely, but the fumes merely inflame and at most cause linear scratches on the cornea made visible by 1 per cent. fluorescein.

Two things are important in combating this cruel weapon: First, to recognize early any suspicion of the irritant and protect against it, and second, to administer on the field first aid correction and prevent involvement of others. One should insist on the immediate application of masks, covering well exposed parts, and withdrawal from the immediate neighborhood, remembering to discard as much as possible all things contaminated. The best way to alleviate parts attacked is to have ready a 2 per cent. sodium bicarbonate solution for the eyes and throat and a 2 per cent. chlorinated lime preparation for the skin and neutralize quickly, for this cannot be used efficiently later any more than an acid burn can be thus treated long afterward. In fact, the lime will later irritate the exposed derm. Aromatic spirits of ammonia may be inhaled, or 2 per cent. sodium thiosulphate and 0.5 per cent. sodium bicarbonate (German method) used as a spray for treating the upper respiratory tract. Complete rest should be given in marked cases as in other gas cases, and plenty of ventilation provided. If severely affected patients have been brought from dirty holes or trenches, I would advise a dose of tetanus antitoxin. In emergencies a lather of soap is placed on exposed parts of the body. Further treatment is that of an ordinary burn, the aseptic opening of blebs, care being taken not to allow the contents to touch other parts

of the skin. Five per cent. sterile boric acid ointment is a good dressing covered by sterile gauze pad and bandage, or 10 per cent. sodium bicarbonate ointment. The eyes are washed with solution of boric acid and covered, and the lids protected for some time with bland yellow mercuric oxid ointment and fear of further injury dispelled. Later dusting powder of bismuth and zinc oxid, or of zinc stearate will prove satisfactory for abraded skin areas.

Dugouts and holes where a person is likely to sit are to be suspected and carefully evacuated by an attendant wearing oil canvas protection. Then chlorinated lime is scattered in places suspected. Articles of salvage and waste should always be held under suspicion of being contaminated. The clothing is soaked in several changes of water at 70 C. Instead of strong alkaline remedies, potassium permanganate, 0.05 per cent. solution, is recommended, or a 0.1 per cent. zinc chlorid, and between the fingers or folds of the scrotum, a weak silver nitrate solution. In advanced respiratory cases, oxygen inhalations are used.

Owing to the censorship, the photographic reproduction of many interesting cases is not permissible. These cases should be given careful attention, and after treatment one need not necessarily excuse patients with mild skin burns from duty.

EFFECTS OF THE INJECTION OF EPINEPHRIN IN SOLDIERS WITH "IRRITABLE HEART"

PRELIMINARY NOTE

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On account of the general interest that has been aroused in the clinical syndrome originally described by Da Costa as the "irritable heart of soldiers," it has seemed to be advisable to present in the form of a preliminary note the observations recorded herein. No broad conclusions are as yet drawn from them. The investigations are being continued, and they will be published in detail later, when the work on the various sections is completed.

PHYSIOLOGIC ACTION OF EPINEPHRIN

In spite of the large amount of clinical and experimental work that has been done on the physiologic action of epinephrin, and on the effect of its injection into the human and animal body, our knowledge of the subject is still very far from complete. There are, indeed, not a few points on which rather fundamental differences of opinion exist among competent investigators. Nevertheless, one fact appears to be quite definitely established, and from the standpoint of the present study this is perhaps sufficient to provide a basis on which to interpret the results. Broadly speaking, epinephrin acts as a stimulant to the sympathetic nervous system.

METHOD

The method adopted was that devised by Goetsch[1] and used by him especially in the study of thyroid disease. The patient lies quietly on a bed for at least an hour. Observations are then made on the systolic and diastolic blood pressure, pulse rate and respiration rate. Notes are also made on the presence of and degree of tremor, sweating, temperature of hands, pulsation of vessels (peripheral and abdominal), and general nervousness. When the blood pressure, pulse and respiration rates are found to be constant for several observations made at five-minute intervals, an injection of 0.5 c.c. of 1:1,000 solution of epinephrin (Parke, Davis & Co. adrenalin tablets freshly prepared) is made into the deltoid muscle. Records are then taken of the systolic and diastolic blood pressure, pulse and respiration rates every two minutes for ten minutes; then every five minutes for one hour, and then every ten minutes for half an hour. At the same time any changes in the symptoms mentioned, or the appearance of new symptoms, is noted. The dosage of epinephrin appears to be well chosen. A large dose would probably produce symptoms in almost every one, but this small amount makes possible the differentiation of a group of persons who may be regarded as hypersusceptible to epinephrin.

A positive reaction to the epinephrin injection consists in the production of a rise in the systolic blood pressure or of the pulse rate of over ten or fifteen points, accompanied by the production of rather typical symptoms, such as flushing, sweating, increased vascular pulsation, increased tremor of the hands and often of the arms, restlessness, and more or less marked general nervousness. The blood pressure may rise 30 or 40 mm. in marked positive cases, and the tendency of the pulse is to follow the systolic blood pressure. Pulse pressure is characteristically increased. Respiration usually increases in depth but not in rate. A moderate rise of blood pressure or pulse rate alone, without the characteristic increase in symptoms, is not regarded as constituting a positive reaction. Slight symptoms may appear in many instances in which a definite reaction is not obtained, and it takes a little experience with positive and negative results to be able to differentiate between the two. The reaction usually begins about twelve minutes after the injection of epinephrin, reaches its climax on the average in thirty-two minutes and is finished in a little over an hour.

CONTROL AND CLINICAL OBSERVATIONS

Some difficulty was found in selecting suitable subjects for control observations. Persons merely in good health while leading a more or less normal life could hardly be used for comparison with a group of men who had developed symptoms while under nervous and physical strain, for one could never be sure exactly how the controls themselves would survive under similar circumstances. Thus, for instance, the hospital medical detachment could not be used, as it contains many men who are assigned to it for the very reason that they are not fitted for the strain of full duty. It seemed necessary, therefore, to look for controls in an organization that had been doing full duty for a considerable period. Such men were found in the 109th Sanitary Train, then at Camp Dix. This had been in active training for nearly two years, and

1. Goetsch: Personal communication to the authors.

the men were in the finest physical condition. With the permission of the division surgeon and the commanding officer, epinephrin tests were made on twenty-seven men picked at random from a group volunteering for the purpose. One man gave a slight suggestive reaction, but in no instance was a typical reaction observed.

The clinical observations to be reported at present comprise those made on a group of sixty-five soldiers representing what may be termed the "constitutionally inferior" type of patient with "irritable heart." Those in whom the symptoms date from a recent infection, and those in whom symptoms developed only after some unusual physical or nervous strain after they had done full duty in training for a considerable period, are excluded. There remains a group of patients giving a clinical picture which is essentially the same in all the cases. It is, moreover, a type of man that is being seen very commonly in the camps in this country at the present time. These patients usually give a history of being "weak" or "easily exhausted" for many years; of having always "favored" themselves, and having avoided "overexertion" often at the solicitation of relatives or on the advice of a physician. Often they have been told they have a "weak heart." They have always done "light" work, have usually "lost much time," and are fairly well contented in a low economic grade. Among their symptoms are nervousness, fainting, vertigo, dyspnea, palpitation and precordial pain on slight exertion. Perhaps the most fundamental symptom, however, is a tendency to become fatigued easily. They have little ambition or "push," and are usually without much self-confidence. They are often introspective or neurotic, and try to evade physical and mental exertion. In civil life many of them belong to the vague group of neurasthenics, but they get along fairly well for they are able to adapt their lives to themselves. When they are brought into the Army they are forced to adapt themselves to a wholly abnormal life—a life of physical and nervous strain—and they fail. Perhaps the most characteristic feature of the whole group is the fact that while the length of their Army service may be months, the period they have done full duty is usually measured by days. Under the strain of drill and hikes they fall out and report to the hospital with symptoms resembling those seen in organic heart disease. In spite of the fact that on physical examination, except for an instability of rate, the heart is normal, they are usually classed among cardiac patients, and the diagnosis "cardiac disease, functional" is made.

Of sixty-five patients in this group, the epinephrin test was positive in thirty-nine (60 per cent.), doubtful or suggestive in six (10 per cent.), and negative in nineteen (30 per cent.). In considering these results one must accept the fact that the clinical group dealt with does not necessarily represent one single clinical entity. There is no reason to suppose the etiology of the symptoms is in all cases the same. It is distinctly interesting, therefore, that so large a proportion should be hypersensitive to epinephrin, and one should at least consider carefully whether an unusually excitable sympathetic nervous system may not play a part in determining their condition. When one compares this group with its positive epinephrin reaction to the group of thoroughly trained soldiers in whom no definite reactions were obtained, the contrast is certainly striking.

BASAL METABOLISM

The effect of the injection of epinephrin on the basal metabolism has been studied in persons giving a positive reaction, and in others in whom no reaction was obtained. The expired air was collected for the periods of nine or ten minutes in a large Tissot spirometer, analyzed, and the heat production calculated from the oxygen consumption and respiratory quotient. The results were compared with the standards given by Du Bois and his associates at the Russell Sage Institute of Pathology. One or two periods were taken before the injection of epinephrin, and one, two or three periods following the injection. In six patients who did not give reactions to epinephrin, there was a rise of metabolism after the injection of epinephrin amounting to between 3 and 11 per cent. Following this there was a fall in metabolism to from 3 to 11 per cent. below the initial normal figure. In sixteen cases showing a positive reaction to epinephrin the rise in metabolism amounted to from 15 to 32 per cent. This was followed after the reaction was over by a fall in metabolism to a point from 3 to 5 per cent. below the initial metabolism before the epinephrin was injected. An injection of salt solution produced no increase in the metabolism in a patient who subsequently showed a rise of 29 per cent. after the injection of epinephrin. The epinephrin caused an increase in the metabolism of more than 20 per cent. in thirteen of the sixteen cases. Epinephrin seems to cause a rapid rise in metabolism, reaching its maximum at the height of the reaction and then falling off rather quickly. The rise in metabolism closely parallels the rise in blood pressure. In the majority the increase of metabolism was associated with a rise in the respiratory quotient.

BLOOD SUGAR DETERMINATIONS

In fifteen cases—seven sensitive to epinephrin and eight negative—blood sugar determinations were made. Three specimens of blood were obtained for analysis, one before the injection of epinephrin, a second from thirty to forty minutes later, an endeavor being made to obtain the blood at the height of the reaction if the patient was epinephrin-sensitive, and a third an hour and a half after the giving of the epinephrin. In each patient following the epinephrin injection the blood sugar was increased, the epinephrin-sensitive cases showing a greater increase than the negatives. The results so far are: Average blood sugar rise in seven epinephrin-sensitive cases, 0.044 per cent.; average blood sugar rise in eight epinephrin-negative cases, 0.028 per cent.

ELECTROCARDIOGRAMS

Electrocardiograms were taken in twelve cases before the injection of epinephrin, at approximately the height of the reaction and after the reaction was finished. At the height, ten of twelve patients noted symptoms, such as dizziness, blurred vision, palpitation and precordial pain, that bore a close resemblance to the symptoms prominent in their histories. The most constant change found in the electrocardiograms was a slight decrease of the height of the T-wave. This always occurred in one lead, usually in two leads, and sometimes in all three. It was most marked in the second lead. In individual cases other abnormalities were seen, as increase of a sinus arryhthmia; inversion of the P-wave; prolongation of the P-R interval, and partial heart block; inversion of the T-wave, and the production of ventricular extrasystoles.

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SATURDAY, DECEMBER 7, 1918

A SPANISH EDITION OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

In a communication to the Editor last March, President George E. Vincent of the Rockefeller Foundation suggested that the publication in Spanish of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION—thus making it available to our colleagues in Central and South America and elsewhere—would be a great achievement, for promoting both scientific medicine and better international relations. The subject was brought before the Board of Trustees of the American Medical Association at the meeting in Chicago last June. The Board gave the matter very favorable preliminary consideration, and ordered that an investigation be made and further facts presented, so that final action might be taken at a later meeting. The matter was again considered at a recent meeting of the Board, with the result that the publication of a Spanish edition of THE JOURNAL was authorized.

The question of establishing closer relationship with the Central and South American republics, Mexico, Cuba, the Philippine Islands, etc., has long been regarded as an important one. The Pan-American Union has been developing this spirit of friendship and cooperation for many years. While business and commercial relations have been developing very rapidly, thus far the scientific men of the United States do not seem to have appreciated the opportunities and the benefits that would result through mutual exchange of views and ideas and of the results of research and investigation. The medical problems of Latin America always have been essentially the same as ours; we have only to recall the comparatively recent epoch-making work of Finlay, Reed, Gorgas, Guiteras, Liceaga and Cruz on yellow fever, of Ashford on hookworm disease, and of Strong on verruca peruana to show how identical are our interests in this field, and how much is to be gained by making each other acquainted with what we are doing and what we have already done. Our colleagues to the south of us have been looking more to France and Germany than to this country for their medical literature, and their medical students were more likely to go to those countries than to this for their undergraduate and postgraduate work.

Some weeks ago letters were sent to about two thousand physicians in Central and South America, outlining the proposition of publishing a Spanish edition of THE JOURNAL, and asking their opinion as to whether such a journal would be welcome. There has not been time for replies except from Central America and the northern parts of South America; but all of these replies have been enthusiastically favorable to the proposition.

Preparations are now being made for the publication of the initial number early in January. For the time being the Spanish edition will be issued semimonthly. It is proposed to include in it practically all of the scientific matter that appears in THE JOURNAL. Original articles and editorials that are of local or very ephemeral interest will not be included, nor will it include the medical news listed under states, marriages, deaths or matter of this character. In a word, everything that may be regarded as of general interest to the new readers, and especially all that is of permanent value, including, of course, the abstracts, Current Medical Literature, and foreign letters, will appear in the Spanish edition.

It needs no prophet to forecast the fact that the relations, always close, between the democracies of North and South America will with every succeeding day become closer and more advantageous on both sides. The better we know each other, the better friends we shall be. Nowhere can this friendship and close relationship be more fruitful than in the field of science, and especially in medical science. It is in this spirit of cooperation and confraternity that the American Medical Association is entering on this enterprise. It may be unnecessary to say that no financial gain is hoped for from this publication. If after several years it pays its own way, it will be doing all that can now be expected of it. Rather, it may be said that the enterprise is begun wholly with the spirit of fostering true internationalism and with purely altruistic motives.

THE FUTURE OF THE MEDICAL PROFESSION

Scarcely have we had time to realize that the great war is over when the numerous after-the-war problems present themselves. Reconstruction seems to be the word on every one's tongue, and the term is applied to almost every phase of human activity. There is reconstruction of the wounded, not only in a physical sense, but also in the sense of reeducating the partially disabled along lines that will enable them to become self-supporting; reconstruction of the industries to meet the new problems of finance, transportation, labor, foreign markets, etc.; in fact, conditions have changed so that readjustments along many lines have become necessary. Nor is the reconstruction idea limited to certain activities, for in some countries the funda-

mental principles of social existence are rapidly undergoing reconstruction. There is so much upheaval going on throughout the world that it is not surprising that the medical profession has received some attention.

The future of the medical profession in England was discussed by Sir Bertrand Dawson in the last Cavendish lecture.[1] It appears that the position of the physician in England is far from being an enviable one and that certain reforms are greatly needed. The physician is overworked and underpaid, and the influence of the profession as a whole in public affairs seems to be practically nil, even when they relate to matters with which the medical man should be the most competent to advise. This is indeed unfortunate, not only for the physician, but also for the community. The present condition of the profession is not the result of the war but the outgrowth of many antecedent conditions, not the least among which is the national health insurance law.

Many physicians who are doing panel work under this law, even with hard work, are unable to earn more than £30 ($150) net a year. While it is admitted that the panels might be made larger and thus yield greater return, this simply reduces the practice of medicine to a question of physical endurance, without regard for brains and ability.

There is much food for thought in this situation for those who without due consideration are urging state health insurance in this country. Dawson's hope for the future of the profession in England lies in a modified form of state medicine. It contemplates the establishment and maintenance by the state of health centers, a health center to consist of a hospital with its out department, social service, etc. The physicians connected with each health center would receive a salary from the state, in return for which they would render medical service at state expense to those of the community who, under the regulations, are entitled to such service. The physicians would not be expected to give their whole time to state work, but would be permitted to have pay patients in the hospital as well as outside, and to receive for their services as the circumstances of the patient may admit, or as their reputation and skill may command.

In certain larger communities there would be so-called "teaching hospitals," with a paid staff, some of the members of which are to be full time, others part time; the younger members of the profession may receive instruction at these institutions, and medical research therein is to be encouraged. The plan contemplates a minister of health, with a council of medical men forming a great state health department.

The general idea of a health center has merit, but the best method of establishing and maintaining it is open to argument, particularly as to the extent to which the state should contribute. The scheme as outlined by Dawson has for its purpose the betterment of the conditions under which the medical profession is laboring in England today. That the adoption of some such plan would be an improvement, at least for the time being, is perhaps correct. The chief criticism, however, which may be made of this scheme is that the betterment of the profession alone is considered; but no lasting improvement can be hoped for that does not take into consideration the community as a whole. It is a problem of society, not simply a problem of a class. The analysis of the deplorable conditions of the profession does not go deep enough into the causes, and unless the causes are recognized and remedied, little permanent improvement will result.

1. Dawson, B.: The Future of the Medical Profession, Brit. Med. Jour., 1918, 2, 23, 56.

DEMOBILIZATION AND VENEREAL DISEASES

The prospect of demobilization of more than 4,000,000 troops presents a large sanitary problem, especially as regards the venereal diseases. The situation offers a unique opportunity for influencing the spread of these diseases in this country. If proper action can be taken so that every soldier with venereal disease can be rendered noninfectious before discharge from the Army, the future venereal disease condition of the country will be greatly benefited. If no successful effort can be carried out to render these men noninfectious before their demobilization, the result, on the contrary, must inevitably be a great increase in the incidence of these diseases. One of the greatest disasters of war is the spread of infections that occurs through the occupation of territory by troops, and even to a greater extent through the disbanding of troops at the close of war. Epidemics following wars have often caused far greater loss of life than have the actual casualties of war itself or diseases occurring among troops during the prosecution of war. This applies particularly to the venereal diseases.

It is clear, then, that a serious epidemic of venereal diseases may befall us if a thoroughgoing, vigorous policy is not pursued in demobilization. Fortunately, it would appear to be comparatively simple to outline a course of action which, successfully carried out, would minimize and probably eliminate this danger, and furthermore, would have an appreciable effect in diminishing the present incidence of venereal infections. The fundamental proposition is that soldiers should not be discharged from the Army as long as they are infectious with chancroid, syphilis or gonorrhea.

The problem of chancroid is a small one, since few cases of this condition or its sequelae occur that cannot be definitely rid of infectiousness in a few weeks.

The practical dangers of syphilis are from the chancre, from mucous patches in the mouth and about the genitals, and from condylomas. All of these can be disposed of in a few weeks under active treatment.

While there is always some danger of recurrence within the next few months, this danger rapidly diminishes as time elapses. In patients who have been treated vigorously with mercury or with mercury and arsphenamin, the danger from these lesions disappears in from four to eight weeks in most cases, and is almost eliminated within six months after the beginning of treatment. In active cases of syphilis, therefore, a great practical advantage would be gained by holding patients for two months, and their danger to the country would be practically eliminated by delaying their discharge for six months. Any remaining trace of danger could still further be reduced by impressing on all such patients the necessity for further treatment, which of course they should have for their own good.

The incidence of gonorrhea is so great, and its infection so insidious after the disease becomes chronic, that it presents the most important and the most difficult of these problems. There are, however, certain definite, well-recognized criteria by which the infected men may be judged to be free from subsequent danger of infectiousness. These criteria can be met by treatment in many cases in from three to six weeks, in most cases in from six to eight weeks, and the cases are rare that cannot be cleaned up by intelligent, vigorous treatment within six months. Patients with gonorrhea in the Army should not be discharged until they meet these criteria.[1]

The practical difficulties of the general problem are (1) the trouble and expense of holding the infected men while undergoing treatment before discharge, and (2) the danger of these men becoming marked in the minds of their civil acquaintances as being venereally infected by reason of the delay in their discharge. The former is of small importance compared to the great advantage for the civil population which this policy would involve. To send these men back to civil life with their infections uncured would be a sanitary crime. The second of these difficulties would not seem hard to obviate because of the relatively short time necessary to carry out this policy. The American Army from Europe cannot be disbanded in a week after it reaches our shores. Some men will have to be retained in service for a few months. The same facts apply to the men in the various domestic camps. It ought, then, to be possible to detain the venereally infected without disclosing the reason for so doing.

1. The following test of cure of gonorrhea is taken from "The Venereal Diseases," American Medical Association, 1918, price 25 cents:

The man should take vigorous exercise on the day before the one on which the examination is to be made.

He should not urinate for two hours before the examination is made.

Examination should show the following findings:

1, He should have no urethral discharge, or at most a mucopurulent drop at the meatus should be obtained on stripping the penis.

2. If such a drop is found, it must be free from gonococci.

3. In the two glass test, both Glass 1 and Glass 2 must be clear and free from pus shreds. Epithelial shreds free from gonococci may be disregarded.

4. The secretion obtained by massage of the prostate and seminal vesicles must show no gonococci and few leukocytes.

5. Examination with a bougie à boule should demonstrate the absence of stricture.

According to newspaper reports, Surgeon-General Ireland proposes to detain men with infectious diseases, including venereal diseases, in accordance with a general policy. It is greatly to be hoped that no considerations of expediency will be interjected to interfere with this enlightened policy.

THE PRODUCTION OF DRUG PLANTS IN THE UNITED STATES

In the early days of the European war this country was brought to a realization of the extent to which it had become dependent on foreign sources for the supply of crude drugs. Much was written about the efforts that should be made to avert the threatened drug famine by seeking unanticipated sources of supply as well as by prompt stimulation of the cultivation of medicinal plants. It was easy for the untutored propagandist to recall "the good old days" when home gardens not infrequently contained a variety of herbs that enjoyed popularity as healing agents and when the fields and forests were recognized as sources of plants of reputed medicinal value. Two or three years ago much was even said about the patriotic duty of growing drug plants.

The existence of a drug crisis after the summer of 1914 need no longer be dwelt on. Now that the prospect of peace permits an unbiased if not unhampered survey of the situation, the medical profession cannot fail to have a serious interest in our prospect and our duty regarding the production of drug plant crops. Two facts of direct import in the matter have been emphasized by an expert of the Bureau of Plant Industry in the United States Department of Agriculture.[1] Owing to the great development of foreign commerce, which made it possible to obtain supplies of most crude drugs from sources where the cost of production was less than in this country, drug cultivation has never become an important branch of agriculture in the United States. In recent years it has been confined chiefly to the production of relatively small crops of plants yielding volatile oils which are in demand for industrial purposes as well as for medicinal use. Furthermore, the problem of marketing drug plants has never been seriously considered here. There are hazards and uncertainties that might lead an enthusiast into early difficulties. Hence, as Stockberger warns, unless closely supervised by some central authority, any extensive movement to grow drugs might easily result in the production of far larger quantities than are needed. This would involve a useless expenditure of effort which might accomplish much good if exerted in other ways.

Out of the large number of plants that yield useful drugs, the list of those suitable for cultivation in this country is not large. Many of them demand

1. Stockberger, W. W.: Production of Drug Plant Crops in the United States, Yearbook, Dept. Agric., 1917, p. 169.

tropical or semitropical conditions; others require much experimentation to transfer them from wild states to those of commercial cultivation in new environments. Like so many other problems raised by the war, that of the successful and profitable production of drug plants clearly indicates the need of expert advice and scientific consideration. Peppermint, spearmint, wormwood, wormseed and tansy are now grown commercially, chiefly as a source of volatile oils. Cannabis is produced in the Southern states. The experiments in camphor growing have encountered financial obstacles owing to the large outlays involved. Digitalis is sufficiently abundant as a wild plant in the Western states to allay all danger of a serious shortage. The American requirement of belladonna could easily be satisfied by the yield from 500 acres; and at least one fifth of this was harvested from cultivation in 1917. Recent attempts to produce henbane as a drug crop in this country have resulted in failure.

Perhaps the enforced restrictions of war-time shortage will have had the not undesirable effect of demonstrating that many of the drugs now in use can well be dispensed with. This will be in harmony with the efforts of the Council on Pharmacy and Chemistry of the American Medical Association, which has long insisted that "a considerable proportion of Pharmacopeial drugs and preparations are superfluous or worthless."[2] In the realm of desirable drug plants, haphazard methods of cultivation are quite as objectionable as is indiscriminate dispensing in the domain of therapy. For the production of a dependable supply of cultivated crude drugs of high quality, Stockberger writes, reliance must be placed on well-equipped growers who make the growing of drug plants a special industry, and who have the necessary experience in special methods of plant culture, acquaintance with trade requirements, and knowledge of the influence of time of collection and manner of preparation on the constituents of the drug on which its value depends. If developed along these lines, he adds, commercial drug growing in this country promises to become established on a sound basis for the future, when normal conditions return.

2. Useful Drugs, a List of Drugs Selected to Supply the Demand for a Less Extensive Materia Medica, Chicago, American Medical Association, 1916.

Physical Education of the Citizen.—The physical education of its citizens has been left almost to chance by nearly all nations, although physical strength and fitness are very important factors in the work of every one. The play and work of their daily lives, together with a casual indulgence in sports on the part of a few, make up the physical training of the masses. Considering its great value to the nation, it would appear advisable to encourage athletic sports, to provide numerous leaders for the specific purpose of encouraging athletic contests and getting all, even the modest, into the fields, the golf links and tennis courts. The great value of universal military drill in strengthening the physique of the young adult is beyond question.—Dr. P. G. Nutting, *Scientific Monthly*, November, 1918.

Current Comment

THE CHANGING RÔLE OF SUGAR IN THE DIET

The promise of increasing allowances of sugar in the near future to the American housewife will be welcome news to many persons. This does not mean that the enforced war-time conservation of sugar has provoked any unpatriotic utterances or occasioned any serious hardship to our population. Every one who reads must realize, after some months of reduced allowance of this food commodity, that sugar is not an indispensable part of the diet. Equivalent substitutes have found a use so quickly and widely as to awaken admiration for the resourcefulness and intelligent culinary ingenuity of the American woman, who has contributed most effectively in many unheralded ways toward winning the war. The history of the place occupied by sugar has changed from decade to decade since the colonial period. After the Revolutionary War, the estimated consumption of sugar in the United States was only 7.5 pounds per capita. It rose slowly to 8.3 pounds in 1821-1825, and remained there for some time. In the year 1915 the per capita use amounted to 84 pounds. In other words, a century ago the people of this country consumed less than one-tenth as much sugar as they do now. A simple calculation shows that the prewar rate of use represented from one fifth to one seventh of the daily food need expressed in terms of calories, at a cost of 2 or 3 cents. It is evident, therefore, that the significance of sugar in the diet has changed from that of a mere flavoring matter a century ago to one of a staple. Indeed, before the war the retail cost of a year's supply for a family of average size was about $23 for sugar, $36 for flour, and $20 for potatoes, whereas the meat cost possibly $200. The promotion of sugar to such dietary prominence has been the result of the profound economic changes in our national life, through improvements in agricultural, mechanical, commercial and transport facilities. Sugar thus affords a striking illustration of how something at first only psychologically valuable may acquire a larger rôle in the daily regimen.

THE "ACRID PRINCIPLE" OF CERTAIN PLANTS

Among the numerous plants still included in the voluminous modern dispensatories of drugs, there are some that contain an irritant usually described as an "acrid principle." Phytolacca, or pokeroot, affords an illustration. A similar "principle" is believed to account for the acridity of certain plants that have not attained therapeutic dignity but are liable to come into contact with man in some accidental way. It is sometimes stated that these acrid principles are dissipated by drying and by heat. Brown and Anderson[1] of the Pharmacological Laboratory at the University of Minnesota have solved the acridity puzzle for a number of these cases. Being unable to isolate any

1. Brown, E. D., and Anderson, D. D.: The Acridity of Some Plants Due to a Mechanical Action, Jour. Pharmacol. and Exper. Therap., 1918, **13**, 37.

volatile irritant, they turned their attention to mechanical factors. Plants like the Indian turnip, species of Callocassia, skunk cabbage and pokeroot contain abundant raphides of calcium oxalate. It is these needle-like crystal masses that produce the irritation referred to as acridity. Any procedure that disintegrates the acicular structures decreases their capacity to produce irritation. This may happen through boiling; hence the supposition of volatility of the irritant substance. The degree of so-called acridity is governed by the physical character of the crystals and the nature of the plant tissues in which they are embedded, those plants containing the long, very slender crystals being much more acrid than those in which the crystals are shorter and thicker. The penetration of the raphides of calcium oxalate in a mechanical way can produce a fiery and painful irritation.

DEMOBILIZATION AND PREMEDICAL EDUCATION

As noted elsewhere, the War Department has ordered the demobilization of all units of the Students' Army Training Corps, and the discharge of the student soldiers began Monday, December 2. This makes unnecessary the further continuance of the condensed course of premedical education which, as shown in THE JOURNAL,[1] was established two months ago as a war measure. Had the war lasted for another year, the continuance of the course as outlined would have been an interesting experiment. Since the necessity for it has been removed, however, its continuance would be at altogether too great a cost. It crowded into four quarters, of three months each, the work heretofore requiring six quarters, or eighteen months. Although the curriculum was planned to more than cover the sixty semester hours of credits (the credit measurement of two years of college work), that total was reached only by allowing a credit of about thirteen semester hours for military instruction and training—subjects for which previously no credit was allowed. The emergency schedule not only was a distinct retrogression from the standard of preliminary education generally adopted before the war began, but also, if continued, would be unfair to the students taking it. It would seriously limit their privileges of entering medical colleges, or, if accepted by the medical schools, it would prevent their securing licenses in the majority of states. While it is probable that the licensing boards would have been willing to make concessions if the war had continued, neither such concessions nor a retrogression in standards is justified now that the emergency has passed. The prewar standards have placed both premedical and medical education in this country on a par with those of other leading nations. America has been forced by the war to accept a larger responsibility than heretofore for world problems and policies; it should be in position also to wield a wider influence in medical education and practice. It is of extreme importance, therefore, that premedical college education shall be promptly restored to its prewar status.

1. Schedule of Studies for Premedical Students, Current Comment, THE JOURNAL A. M. A., Oct. 19, 1918, page 1317.

Association News

NEW COUNCIL APPOINTMENTS

Filling Vacancies on Councils on Medical Education and on Health and Public Instruction

The President of the Association, Dr. Arthur Dean Bevan, has made the following appointments: on the Council on Medical Education, John M. Dodson, Chicago, vice H. D. Arnold, Boston, resigned; Isadore Dyer, New Orleans, vice H. Gideon Wells, Chicago, resigned; on the Council on Health and Public Instruction, Victor C. Vaughan, Ann Arbor, Mich., vice Ludvig Hektoen, Chicago, resigned. These appointments, in accordance with the By-Laws of the Association, fill the vacancies until the next annual session.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending November 29, there were in the Medical Corps 31,197 officers, an increase of thirty-nine over the previous week. This personnel includes three major-generals, six brigadier-generals, 200 colonels, 433 lieutenant-colonels, 2,357 majors, 9,986 captains and 18,212 lieutenants. There were in active service 30,408, an increase of sixty-nine over the previous week. Discharges to date include 2,855 officers.

European Red Cross Survey

It is announced by the American Red Cross that Major Homer Folks, formerly head of the New York State Charities Aid Association, who has been with the American Red Cross abroad since July, 1917, has been promoted to lieutenant-colonel and has been made chairman of a special mission to make a survey of the European countries in which the Red Cross is operating on which to base a comprehensive program of reconstruction. It is believed that through the rapidly changing conditions in those countries since the signing of the armistice an even larger demand may be made on the Red Cross. Investigations have already been made in Italy, and the Balkan countries will be next visited. The survey is to include Turkey, Armenia and Palestine.

Students' Army Training Corps Demobilized

On November 26 a telegram was sent to the presidents of all institutions having units of the Students' Army Training Corps, as follows:

"Commanding Officers of all units of S. A. T. C. both Sections A and B have been directed to demobilize and discharge the men commencing week of December first, with a view to completion of discharge by December twenty-first. Secretary of War has directed this Committee to arrange adjustments under contracts between institutions and War Department concerning which you will be advised. Letter follows."

The letter referred to confirmed the telegram and stated that adjustments would be handled by the business department of the committee in accordance with a line of procedure which is now being determined. It requested that no arrangement be made for the salvage or disposal of barracks, equipment, etc., pending receipt of information from the business department.

Demobilization of Medical Officers

We are informed that the Surgeon-General of the Army has requested the honorable discharge of all officers over 50 years of age with a view to enabling men well along in life to return to their homes and to take up their practice or other work with as little delay as possible. This step is taken with the belief that the older men should have the advantage of an early discharge in order that the work of recovering their practice and reestablishing themselves in their civil capacities may be less difficult. In taking this action the Surgeon-General wishes it to be understood that the work and service of these men in the department have been greatly appreciated, as well as the substantial sacrifice which they have made in

entering the service, the spirit which they have exhibited in tendering their services to the country in its time of need, and the satisfactory performance of the duties which have been assigned to them.

At the same time the Surgeon-General has requested the discharge of all officers with a personal rating lower than 55 on the scale of 100.

After these two classes of officers have been discharged the Surgeon-General will adopt a most liberal policy in the demobilization of the remainder of the Medical Corps, and will give special consideration to the policy of discharging officers who are needed by the community or whose affairs in civil life are making insistent demands for their early return. The age, length of service, location in which the officer lives, etc., will be especially considered in returning officers to civil life.

To assist the Surgeon-General to determine his policy of demobilization, a questionnaire is being circulated among the officers and it will be the policy of the department to take such action as will most nearly coincide with the interests and expressed desire of the officer. The questionnaire which has been circulated among officers is as follows:

From: THE SURGEON-GENERAL

Subject: Demobilization of officers of the Medical Department.

1. I am directed by the Surgeon-General to advise you that the present plans for the demobilization of officers of the Medical Department holding temporary commissions and who hold no Regular Army commissions, contemplate the division of such officers of the Medical Department into four clases:

First: those desiring immediate and complete release by way of honorable discharge;

Second: those desiring immediate release from active service and reappointment in the Officers' Reserve Corps, inactive;

Third: those who desire to remain on duty under their present commissions as long as their services are required;

Fourth: those desiring appointment in the Regular Army and who are considered eligible for such appointment.

2. Under existing law the maximum age limit for appointment in the Medical Corps of the Regular Army is 32 years, Dental Corps, Regular Army, 32 years and Veterinary Corps, Regular Army, 27 years. There is no provision of law for Reserve Commissions in the Sanitary Corps.

3. The Surgeon-General requests that you advise the personnel division of this office immediately in which of the above classes you wish to be placed.

(Signed) C. R. DARNALL,
Colonel, Medical Corps, U. S. A., Executive Officer.

In discharging officers the following individual records must be made and transmitted to the office of the Adjutant-General: copy of authority for discharge or separation from active service, report of physical examination, appendix to file record card and qualification card.

The following officers will not be discharged under the provisions of special instructions which have been issued: (*a*) officers holding commissions in the regular Army either on the active list or retired list; (*b*) officers under arrest on charges, or serving sentence of general court martial; (*c*) officers having had money or property accountability, and who have not clearance therefrom; (*d*) officers on sick report or in hospital; (*e*) officers who for exceptional reasons cannot be spared, or who in the opinion of the commanding officer should not be discharged at this time.

We are informed that it is the intention to issue Reserve Corps commissions in general to those officers who have served with credit to themselves in the war, and who desire such commissions.

Weekly Bulletin No. 29, American Expeditionary Forces

The following paragraphs are taken from Weekly Bulletin No. 29, Oct. 28, 1918, issued for circulation among American medical officers in France:

SECONDARY PNEUMONIA WITH INFLUENZA

From all sources, French, English, Swiss, Spanish, throughout the American Expeditionary Forces, and from our cantonments and civil health departments at home, the opinion appears to be unanimous that the respiratory infection now epidemic is due to, or at least the great majority of the cases are accompanied by, the influenza bacillus, which is easily and commonly found in the early stages or onset of the infection, and may be found in lungs, blood and cerebrospinal fluid. Great interest is attached to the incidence of the main, if not the only, serious complication, namely, the pneumonia, sometimes almost a sharply marked lobar involvement, oftener a disseminated patchy or bronchopneumonia.

A striking relationship is shown between the percentage of complicating pneumonias and the mortality from them, and the lack of resistance from one or other cause and the sanitation and hygiene of the different groups reported on. On shipboard with almost intolerable conditions of exposure, fatigue, anxiety, ill nourishment, poor ventilation and close contact, we have as high as 50 per cent. of bronchopneumonia, and of these cases as many as 50 per cent. die within a week of the onset of the disease. In one of the Army corps in active operations we had, in spite of fairly extensive prevalence of influenza, only 20 deaths from pneumonia in three months. In one of the large regions of France where there were many of the younger classes of the French military in barracks undergoing training, pneumonia developed in as high as 33 per cent. of the cases, the percentage of deaths being from 25 to 40 per cent. In a group of 500 cases of influenza at a camp hospital in the S. O. S., 6.45 per cent. developed pneumonia and of these 50 per cent. died.

With uniformity where resistance is high, as for instance, resulting from mature training and active outdoor military operations not beyond human endurance, where men have adequate clothing and hot food and can sleep in dry quarters, influenza is but a temporary inconvenience with insignificant mortality. Early recognition and hospital care prevents complications; segregation, by cubicle and mask, diminishes cross infection. Rest and symptomatic care and nursing under skilled internists diminishes the death rate.

The epidemic, which has lasted about two months since its return in the American Expeditionary Forces, is diminishing in almost all sections and among all troops, old and new arrivals. In Section 2 the reduction in cases has been 50 per cent. in the past week. The percentage of complicating pneumonias among cases in the American Expeditionary Forces has been from 9.3 to 10 per cent. and the total death rate from influenza and all pneumonias occurring during the period of the epidemic has been from 4.5 to 4.8 per cent. Reports from the French military and civil authorities show a mortality of from 5 to 8 per cent. The last convoys of transports arriving during the week with 28,898 men had 149 cases of influenza and pneumonia, and two deaths during the voyage, showing a vast improvement, one previous convoy having arrived with 24,000 troops and 233 deaths en route and another 311 among cases hospitalized after arrival at the base port.

We are beginning to get an increase in the primary lobar pneumonias and it behooves us to take advantage of the warning given us by the influenza and prepare to prevent pneumonia this winter by persistent and consistent measures to raise and maintain individual resistance by providing air, food, warm dry clothing, and by saving men where possible from exhaustion. Once a man is sick with a respiratory disease he must be treated with as much intelligent medical and efficient technic as is lavished on his fellow surgical sufferer who is guarded similarly against the ubiquitous streptococcus.

EPIDEMIC DISEASE REVIEW FOR THE WEEK

Influenza and pneumonia have during the past week diminished in all parts of the American Expeditionary Forces.

The present practice of hospitalizing and holding without transfer all respiratory diseases at once on establishing a diagnosis must be credited with the marked reduction in the number and severity of the complicating pneumonias after influenza. The almost universal adoption of some form of cubicle isolation of all respiratory tract infections in hospitals and the increasing use of nose and mouth masks for these patients on their way to hospitals and on hospital trains, and the protection of hospital personnel in the same way have also played a large part in reducing pneumonias and cross infections.

There has been a further fall in meningitis, 106 cases being reported as compared with 147 and 167, respectively, in the weeks ending October 20 and October 13, and of the cases reported in the past week just 50 per cent. are properly attributable to infection brought on transports.

Diphtheria again shows an increase. The cases are not grouped in any particular organization but are found (at least 67 of the 97 cases reported) among organizations engaged in active operations at the front. It would appear that the great difficulties in reaching men for medical observation of carrier and contact cases and the abundant opportunities for close contact among wounded men during evacuation from the front and from the evacuation hospitals are chiefly responsible for the increase in diphtheria.

Dysentery, measles, typhoid fever and scarlet fever show no significant change.

Weekly Bulletin No. 30

The following paragraphs are taken from Weekly Bulletin No. 30, Nov. 4, 1918, issued for circulation among American medical officers in France:

PREVENTIVE MEDICINE BY PUNGENT ADVICE IN A D. S. O. CIRCULAR OF 80TH DIVISION

"To all Medical Officers. 1. There are over five hundred (500) cases of diarrhea reported in the division. Laboratory examination and clinical study have proved the condition to be a catarrhal enteritis of undiscovered specific cause, and not dysentery. The disease has direct connection with faulty kitchen and mess sanitation, imperfect water sterilization, poor cooking and filthy latrines. In those organizations where food is handled and cooked properly, kitchens kept clean, bags rinsed, and latrines given required attention, there are few cases of diarrhea. Such condition exists in the —— Machine Gun Battalion.

2. In those organizations where there is not the required attention paid to these matters of sanitation the disease is prevalent. Such condition exists in the —— Battalion of the —— Infantry.

3. The matter resolves itself into medical responsibility, and the surgeon who neglects to meet this responsibility is directly responsible for the increased sickness in his command.

4. The mere making of recommendations to organization commanders, and telling people what to do, will not suffice. The surgeon must supervise the work at hand and see to it that sanitary requirements are carried out. If any difficulty is experienced in carrying out health measures properly, report will be made at once to the Division Surgeon, for action by the Commanding General.

5. The best treatment for the existing disease consists in early administration of castor oil, and dieting. Get the castor oil from the Medical Supply Officer. Merely requisitioning for it may not get it; go after it until you get it. Also ferret out the cases in the command so as to give them early treatment. Train the men to report to you promptly for any ailment. The serious cases of diarrhea are the ones not reporting to you until the disease has existed for four (4) or five (5) days or longer, and treatment has been delayed. Such cases generally require hospital treatment. Their service is lost, and when they are evacuated to corps hospitals, as frequently becomes necessary, the men are lost to the division.

6. Get an early breakfast, cut out that bridge game, and get on the job."

WEEKLY REPORT OF DISEASE

Meningitis has shown a gratifying reduction during the past week, 43 cases being reported as against 106 for the week previous. Scarlet fever, diphtheria and dysentery show similar reductions. The widespread prevalence of pneumonia and influenza continues, but there are signs of improvement not only in the military but also in the civil population. The mortality from pneumonia, primary, or complicating influenza, has been very high, in some sections exceeding 50 per cent. The same is true of bronchopneumonia.

The week ending October 18, 9,081 cases of influenza were admitted to hospitals in the American Expeditionary Forces and 10,985 the week ending October 25. Pneumonia, except bronchopneumonia, week ending October 18, 831; week ending October 25, 1,077; bronchopneumonia, week ending October 18, 492; week ending October 25, 853.

Weekly Bulletin No. 31

The following paragraphs are taken from Weekly Bulletin No. 31, Nov. 11, 1918, issued for circulation among American medical officers in France. This bulletin deals largely with the prevention of influenza and pneumonia among troops. In addition to the usual sanitary precautions, the following paragraphs are of interest:

PREVENTION OF INFLUENZA

WORK

When influenza is spreading rapidly in a command it is wise to remember that when men are overworked to the point of exhaustion they are rendered thereby extremely susceptible to infectious diseases. It is advisable, therefore, if military conditions at all permit, to ask that drill schedule and other work be slightly reduced until the epidemic is under control.

WHEN THE DISEASE HAS APPEARED: INSPECTION AND SEGREGATION

When cases of grippe have begun to appear the medical officer should attend roll call and rapidly inspect all the men every morning. This can be done with speed by walking down the line, observing men for signs of "colds in the head," coughing, sneezing, or red eyes, and asking a few questions. Suspicious men should be made to step out and be sent to the sick call, where temperatures should be taken.

Men with definite colds in the head, without temperatures, should be taken out of their billets and made to sleep in special barracks or billets, or other available space, with shelter halfs hung up so as to form screens between neighboring beds. If possible, they should be given an extra allowance of bed covering. They should be placed on light duty for a day or two. If no special quarters are available for such men, put them all together at one end of the barrack and separate this end from the rest of the barrack by hanging up blankets, or in some other way making a screen.

Men with temperatures but without pulmonary signs should be hospitalized in the infirmary or field hospital in special grippe wards. In such wards ample floor space and screening between beds should be attended to. If possible, light and loose gauze masks should be provided for patients and attendants. If the temperature continues without coming down for forty-eight hours, or if pulmonary signs develop, the patient should be evacuated promptly.

Of all men showing temperatures on first inspection careful chest examination should be made. If any signs pointing to extensive bronchitis or actual pulmonary involvement are found, the patient should be evacuated promptly.

EVACUATION

During evacuation grippe cases should not be placed in the same ambulances with wounded or with other sick. Remember that, in evacuating pneumonia, the greatest care must be taken to prevent their exerting themselves. Do not let them walk, or dress, or undress themselves. Keep them on their backs. Failure to observe this may make the difference between recovery and death.

HOSPITALIZATION

In evacuation and other hospitals, grippe cases must be placed in separate wards.

Cases developing pneumonia must be taken out of the grippe wards promptly and placed in separate pneumonia wards.

Beds must be screened one from the other.

Attendants must wear light gauze masks.

Sputum must be disinfected or burned.

Thermometers must be sterilized.

The report is also largely devoted to the epidemic of meningitis which developed in one of the camps, and a study of the cases of this epidemic.

The report concludes:

During the past week there has been a sharp increase in diphtheria, the cases having originated chiefly in the zone of combat in the advance section and thence evacuated to the base hospitals where but few new cases have developd. Dysentery and meningitis show further and marked reductions. Four cases of smallpox have been reported among incoming troops at base ports. Influenza continues to decrease although the incidence and case mortality of the complicating pneumonias continue high.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Biltmore, N. C., for instruction, from Fort Oglethorpe, Capt. R. C. JONES, Mobile.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Lieut. C. H. MOORE, Birmingham.

To Camp Dodge, Iowa, base hospital, from Camp Grant, Lieut. A. L. GASTON, Ensley.

To Camp Travis, Texas, base hospital, from Fort Sill, Lieut. L. E. SORRELL, Birmingham.

To Philadelphia, Pa. University of Pennsylvania, from University, Va., Lieut. L. B. NICHOLSON, Gadsden.

To Washington, D. C., Surgeon-General's Office, from Washington, Major E. S. SLEDGE, Mobile.

Arizona

To Newport News, Va., from New York, Capt. R. E. HERENDEEN, Bisbee.

The following order has been revoked: *To Camp Sheridan, Ala.*, base hospital, from Fort Oglethorpe, Lieut. E. B. THOMPSON, Benson.

Arkansas

To Fort Des Moines, Iowa, from Camp Dodge, Major L. THOMPSON, Hot Springs.

To Hoboken, N. J., from Panama Canal Department, Capt. D. GANN, Jr., Little Rock.

California

To Camp Jackson, S. C., base hospital, from Camp Cody, Lieut. E. H. CRABTREE, San Diego.

To Camp Leach, D. C., from Camp A. A. Humphreys, Lieut. B. J. LASSWELL, Quincy.

To Camp Logan, Texas, from Fort Oglethorpe, Capt. C. M. DuPUY, Oakland.

To Camp Travis, Texas, base hospital, from Camp Kearney, Lieut. J. A. GUILFOIL, San Luis Obispo.

To Carlisle, Pa., from Camp Dix, Capt. C. L. McCLISH, Los Angeles.

To Detroit, Mich., from Fort Oglethorpe, Capt. M. P. BURNHAM, San Francisco.

To Fort Benjamin Harrison, Ind., base hospital, from Camp Pike, Capt. A. S. J. SMITH, San Jose.

To Fort Oglethorpe, base hospital, from Camp Fremont, Lieut. F. J. BRESLIN, San Francisco; from Camp Pike, Capt. J. A. JACKSON, San Diego; from San Francisco, Capt. D. A. CONRAD, Santa Barbara.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. R. L. CRUM, Los Angeles.

To Hollywood, Calif., Los Angeles State and Normal School, from Fort McDowell, Capt. F. P. BRENDEL, San Francisco.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. F. HAMMAN, Long Beach.

To Los Angeles, Calif., as examiner, Capt. M. M. CLOUD, Los Angeles.

To Washington, D. C., Surgeon-General's Office, from Lake Charles, Major L. F. LUCKIE, Los Angeles; from Newport News, Major W. A. SAWYER, Berkeley.

To West Baden, Ind., from Camp Dodge, Major C. E. PHILLIPS, Los Angeles.

The following orders have been revoked: *To San Francisco, Calif.*, Leland Stanford University, for instruction, from Letterman General Hospital, Capts. W. C. BAKER, San Mateo; E. L. COTTRELL, Scotia; Lieut. L. DOZIER, Stockton.

Colorado

To Camp Lee, Va., from Camp A. A. Humphreys, Lieut. A. H. PETERS, Colorado Springs.

To Fort Riley, from Camp Zachary Taylor, Lieut. J. A. PHILLPOTT, Denver.

To West Baden, Ind., from Camp Dodge, Lieut. I. C. MIERLEY, Denver.

The following order has been revoked: *To Camp Sherman*, Chillicothe, Ohio, base hospital, for instruction, from Pittsburgh, Lieut. G. L. SHARP, Colorado Springs.

Connecticut

To Camp Travis, Texas, base hospital, from San Antonio, Lieut. F. M. SMITH, Willimantic.

To Camp Wheeler, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. G. E. PORTER, Warehouse Point.

To Cooperstown, N. Y., from Fort Riley, Lieut. E. N. DEWITT, Bridgeport.

District of Columbia

To New Haven, Conn., from Fort Oglethorpe, Major R. D. ADAMS, Washington.

To Washington, D. C., Surgeon-General's Office, Colonel H. D. SNYDER, Major T. D. HURLEY, Washington Barracks, from Fort Oglethorpe, Lieut. W. J. G. THOMAS, Washington.

Florida

To Camp McClellan, Ala., from Auburn, Ala., Lieut. A. E. ACKER, Jacksonville.

To Camp Sherman, Ohio, base hospital, from Camp Beauregard, Capt. J. C. VINSON, Tampa.

Georgia

To Camp Wheeler, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. P. C. QUARTERMAN, Valdosta.

To Fort McPherson, Ga., from Atlanta, Lieut. J. T. MOORE, Sycamore.

To Fort Oglethorpe, base hospital, from Camp Gordon, Capt. H. H. MALONE, Augusta.

To Walter Reed General Hospital, D. C., for instruction, and on completion *to Boston, Mass.*, from Camp Wheeler, Capt. O. L. MILLER, Atlanta.

The following order has been revoked: *To White Plains, N. Y.*, for instruction, from Fort McPherson, Capt. G. P. HUGULEY, Atlanta.

Illinois

To Baltimore, Md., Johns Hopkins Medical School, from New York, Capt. G. B. HASSIN, Chicago.

To Boston, Mass., for instruction, from Camp Devens, Lieut. J. L. WEBB, Chicago.

To Camp Cody, N. M., from Fort Bayard, Lieut. C. E. DUNCAN, McClure.

To Camp Custer, Mich., base hospital, for instruction, Lieut. P. H. WESSEL, Moline.

To Camp Devens, Mass., from Fort Oglethorpe, Lieut. G. M. LANDAU, Chicago.

To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. G. FITZPATRICK, Chicago.

To Camp Hancock, Ga., base hospital, from Boston, Capt. J. H. BACON, Peoria.

To Camp Lee, Va., base hospital, from Camp Custer, Capt. D. M. KEITH, Rockford.

To Camp Logan, Texas, from Fort Oglethorpe, Lieut. J. S. BERKOWITZ, Chicago. Base hospital, from Central Department, Major K. THEXTON, Chicago.

To Camp Meade, Md., from Fort Oglethorpe, Capt. J. V. WHITE, Auburn.

To Camp Travis, Texas, from Fort Riley, Capt. J. H. ELLINGSWORTH, East Moline. Base hospital, from Camp Pike, Lieut. J. T. O'NEILL, Joliet; from Fort Thomas, Lieut. G. H. ANDERSON, Chicago.

To Cape May, N. J., base hospital, from the Surgeon-General's Office, Lieut.-Col. P. P. SCHUYLER DOANE, Chicago.

To Everman, Texas, Barron Field, from Urbana, Lieut. R. F. MNOLL, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Riley, Lieut. D. F. PAUL, Chicago.

To Fort McPherson, Ga., from Camp Gordon, Lieut. C. A. JACOBSON, Chicago.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. G. E. PFEIFFER, Chicago; from Camp Jackson, Lieut. H. SERED, Chicago; from Camp Shelby, Lieut. P. T. DIAMOND, Evanston. For instruction, from Chicago, Lieut. H. S. SULLIVAN, Chicago.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. H. H. SHEETS, Oregon; Lieuts. W. H. HOWARD, D. KLEMPTNER, Chicago.

To Fort Sheridan, Ill., from Camp Devens, Capt. N. S. DAVIS, III, Chicago; from Camp McClellan, Capt. W. H. GAMBILL, Centralia.

To Hampton, Va., Langley Field, from Morrison, Va., Lieut. C. H. REINHARDT, Chicago.

To Indianapolis, Ind., from Mineola, Major O. YARNELL, Decatur.

To Otisville, N. Y., from Camp Zachary Taylor, Capt. W. G. BAIN, Springfield.

To Plattsburg Barracks, N. Y., from Camp Travis, Capt. W. O. KROHN, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. GALLAND, Chicago.

To South Baltimore, Md., from Russel, Va., Capt. H. WOOD, Batchtown.

To Walter Reed General Hospital, D. C., for instruction, from Camp McClellan, Lieut. J. R. SHOLL, Peoria.

To Washington, D. C., from Chicago, Lieut.-Col. W. S. SHIELDS, Surgeon-General's Office, from Arcadia, Major R. H. BOLLING, Philadelphia.

To West Baden, Ind., from Camp Dodge, Capt. F. J. LESEMAN, Chicago. For instruction, from Fort Oglethorpe, Lieut. T. W. ROBERTS, Joppa.

The following orders have been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Lieut. G. W. WESTERMEIER, Carlinville; G. E. KNAPPENBERGER, Macomb. *To Hampton, Va.*, Langley Field, from Richmond, Va., Capt. R. R. TRUEBLOOD, Lawrenceville.

Indiana

To Camp Grant, Ill., from Camp Beauregard, Lieut. V. G. HURSEY, Legonier.

To Camp Lee, Va., from Camp A. A. Humphreys, Lieut. J. H. HAUCK, Terre Haute; from Fort Oglethorpe, Capt. C. E. GILLESPIE, Seymour.

To Camp Upton, N. Y., base hospital, Capt. H. B. COX, Morristown.

To East Norfolk, Mass., from Camp Greene, Capt. H. D. PURDUM, Sykesville.

To Fort Benjamin Harrison, Ind., for instruction, from Camp Shelby, Capt. H. G. FLEMING, Anderson.

To Fort Oglethorpe, base hospital, from Fort McPherson, Lieut. M. M. MORAN, Portland. For instruction, Capt. A. A. THOMAS, Linton.

To Fort Sam Houston, Texas, base hospital, from Camp Kearney, Capt. C. E. COTTINGHAM, Indianapolis.

To Fort Snelling, Minn., from Fort Oglethorpe, Capt. G. W. ANGLIN, Warsaw.

To report to the commanding general, Northeastern Department, from Plattsburg Barracks, Major G. L. GUTHRIE, Indianapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. A. BROWN, Indianapolis.

To West Baden, Ind., from Camp Jackson, Capt. J. A. MacDONALD, Indianapolis.

Iowa

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. C. C. LYTLE, Lansing.

To Camp Zachary Taylor, Ky., base hospital, from Nashville, Tenn., Capt. C. ASCHENBRENNER, Pella.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Capt. B. LACEY, Glenwood.

To Fort Des Moines, Iowa, for instruction, from Fort Oglethorpe, Lieut. M. S. CORLETT, Westgate.

To Fort Oglethorpe, base hospital, from Otisville, Capt. W. L. HEARST, Cedar Falls.

To Fort Snelling, Minn., from Camp Grant, Capt. E. J. HARNAGEL, Des Moines; Lieut. W. H. REDMOND, Cedar Rapids.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. O. MURPHY, Eldon.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, for instruction, from Fort Oglethorpe, Capt. F. LAMBACH, Davenport.

To Washington, D. C., Surgeon-General's Office, from Fort Riley, Major H. C. PARKER, Dubuque.

Kansas

To Camp Sherman, Ohio, base hospital, from Camp MacArthur, Capt. W. C. CHANEY, Independence.

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. G. A. KING, Maplehill.

To Denver, Colo., for instruction, from Fort Riley, Capt. C. J. McGEE, Leavenworth.

To Walter Reed General Hospital, D. C., from Fort Leavenworth, Lieut.-Col. F. N. CHILTON.

Kentucky

To Camp Lee, Va., from Camp A. A. Humphreys, Major G. C. LEACHMAN, Louisville.

To Detroit, Mich., from Camp Jackson, Major E. B. BRADLEY, Lexington.

To Fort Benjamin Harrison, Ind., from Central Department, Capts. W. T. McKINNEY, S. P. MYER, Louisville; from Walter Reed General Hospital, Capt. J. A. ROBERTSON, Fort Thomas.

To report to the commanding general, Eastern Department, from Albany, Lieut. L. J. GODBEY, Berea.

Louisiana

To Camp Cody, N. M., from Fort Bayard, Capt. W. H. SEEMAN, New Orleans. Base hospital, from Fort Bliss, Major J. W. LEA, Jackson.

To Camp Jackson, S. C., base hospital, from Camp Shelby, Lieut. S. M. BLACKSHEAR, New Orleans.

To Camp Logan, Texas, base hospital, from Camp Beauregard, Major W. E. HALL.

To Camp Sherman, Ohio, base hospital, from Camp Shelby, Capt. A. B. NELSON, Shreveport.

To Fort McPherson, Ga., from Boston, Lieut. R. S. KEMP, New Orleans.

To Fort Oglethorpe, base hospital, from Camp Gordon, Capt. A. L. WHITMIRE, New Orleans.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. T. R. McCARLEY, New Orleans.

To Plattsburg Barracks, N. Y., from Camp Custer, Capt. T. W. EVANS, Jackson.

Maine

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Capt. C. M. ROBINSON, Portland.

To Fort McPherson, Ga., for instruction, from Camp Jackson, Capt. D. B. CRAGIN, Waterville.

To Houston, Texas, Ellington Field, from Princeton, N. J., Capt. W. E. WHITNEY, Bangor.

Maryland

To Boston, Mass., for instruction, from Fort Oglethorpe, Lieut. G. E. LANCASTER, Bowie.

To Camp Wheeler, Ga., as camp surgeon, from Camp Meade, Major O. H. STANLEY.

To Carlisle, Pa., for instruction, from Camp Custer, Capt. W. B. PERRY, Baltimore.

To East Norfolk, Mass., from Plattsburg Barracks, Lieut. L. B. HOHMAN, Baltimore.

To Erie, Ohio, from Camp Lee, Capt. P. L. TRAVERS, Easton.

To Fort Hancock, N. J., from Camp Upton, Capt. F. K. NICHOLS, Baltimore.

To Fort McPherson, Ga., from Boston, Lieut. L. BRADY, Baltimore.

To Fort Oglethorpe, base hospital, from Camp McClellan, Capt. T. J. COONAN, Westminster; from Camp Shelby, Major A. D. ATKINSON, Baltimore.

To Newport News, Va., from Fort Oglethorpe, Capt. N. H. BRUSH, Baltimore.

To Rockefeller Institute for instruction, and on completion *to Boston, Mass.,* from Camp Meade, Lieut. T. S. MEBANE.

To Schenectady, N. Y., from Troy, N. Y., Lieut. A. L. WILKINSON, Raspeburg.

To Walter Reed General Hospital, D. C., from the Surgeon-General's Office, Capt. H. P. MAUCK, Baltimore, Lieut. C. L. BAKER, Takoma Park.

To West Baden, Ind., for instruction, from Fort Oglethorpe, Lieut. J. A. SKLADOWSKY, Baltimore.

To Williamsbridge, N. Y., from Camp Meade, Capt. G. F. SARGENT, Towson.

Massachusetts

To Arcadia, Fla., Dorr Field, from Atlanta, Lieut. A. O. McLAUGHLIN, Haverhill.

To Camp Abraham Eustis, Va., from Newport News, Lieut W. W. MARSTON, Newton.

To Camp Devens, Mass., base hospital, from Syracuse, Major C. B. STEVENS, Worcester.

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. E. R. GOOKIN, Boston.

To Camp Hancock, Ga., base hospital, from Camp Sevier, Capt. E. L. HUNT, Worcester.

To Camp Kendrick, N. J., from Eastern Department, Capt. H. H. SUMNER, Lowell.

To Camp MacArthur, Texas, base hospital, from Otisville, Capt. G. L. SCHADT, Springfield. Base hospital, for instruction, from Camp Custer, Major W. E. FAULKNER, Boston.

To Camp Travis, Texas, base hospital, from San Antonio, Lieut. D. H. NISBET, Boston.

To Camp Upton, N. Y., from Eastern Department, Capt. W. H. ALLEN, Mansfield. Base hospital, for instruction, from Camp Crane, Capt. E. FLAGG, Boston.

To Carlisle, Pa., from Camp Beauregard, Major A. S. KIRKWOOD, Newton; from Fort Oglethorpe, Capts. D. L. MARTIN, Boston, W. G. CURTIS, Wollaston.

To Detroit, Mich., from Camp Meade, Lieut. H. M. BAKER, Boston.

To Fort McHenry, Md., from Camp A. A. Humphreys, Lieut. A. D. VAMVAS, Boston.

To Fort McPherson, Ga., Lieut. D. B. COLEMAN, Wellesley.

To Fort Oglethorpe, base hospital, from Camp Wadsworth, Lieut J. E. GALLAGHER, Chicopee.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. J. H. HILTON, Lawrence.

To Fort Snelling, Minn., from Fort Oglethorpe, Capts. T. E. CAVANAUGH, Holyoke; C. C. BURPEE, Malden.

To Lakewood, N. J., from Fort Oglethorpe, Capt. T. W. MURPHY, Lawrence.

To Newport News, Va., from Camp Zachary Taylor, Capt. E. B. YOUNG, Boston.

To Panama Canal Department, Lieut. A. A. NAUMANN, Springfield.

To Plattsburg Barracks, N. Y., from Camp McClellan, Major G. E. McPherson, Harding.

To report to the commanding general, Northeastern Department, from Plattsburg Barracks, Lieut. J. Y. RODGER, Lowell.

To San Antonio, Texas, Kelly Field, from Ithaca, Lieut. E. E. LIGHT, East Long Meadow.

Michigan

To Alcatraz, Calif., for instruction, from Camp Kearney, Lieut. W. G. JENKINS, Newberry.

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. H. S. CARR, Niles.

To Camp Custer, Mich., base hospital, Lieut. C. R. WALSH, Detroit.

To Camp Lee, Va., from Fort Oglethorpe, Lieut. J. H. HOUTON, Flint.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. H. MULLER, Grand Rapids.

To Camp Sherman, Ohio, base hospital, Capt. T. H. E. BELL, Reading; from Camp Dodge, Major W. N. SALISBURY, Ann Arbor.

To Camp Travis, Texas, base hospital, from San Antonio, Lieut. L. M. BUSH, Detroit.

To Detroit, Mich., from Camp Meade, Lieut. A. W. HEINE, Detroit.

To Fort Porter, N. Y., from Camp Custer, Capt. S. A. BUTLER, Pontiac.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. C. A. WOODRUFF, Detroit.

To Houston, Texas, Ellington Field, from Princeton, N. J., Lieut R. F. BOONSTRA, Detroit.

To Lakewood, N. J., from Fort Oglethorpe, Capt. F. B. MINER, Flint.

To Marbleton, Pa., from New Haven, Capt. A. M. WEHENKEL, Detroit.

To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion *to their proper stations,* from Camp Meade, Lieut. J. K. BURNS, Jr., Detroit; from Jeffersonville, Ind., Capt. C. B. GARDNER, Alma.

The following order has been revoked: *To Sewanee, Tenn.,* from Fort Oglethorpe, Capt. C. F. SMITH, Whitehall.

Minnesota

To Camp Dodge, Iowa, from Camp Zachary Taylor, Lieut. H. OERTING, Minneapolis. Base hospital, from Camp Grant, Lieut. J. M. ARNSON, St. Paul; from Fort Douglas, Lieut. W. J. McKILLIP, Duluth.

To Camp Las Casas, P. R., from Camp Jackson, Capt. C. F. McNEVIN, St. Paul.

To Camp Pike, Ark., base hospital, from Fort Riley, Capt. L. M. BOYD, Alexandria.

To Fort Bayard, N. M., from Fort McDowell, Capt. A. PETERSON, Rochester.

To Fort Oglethorpe, base hospital, from Fort Logan H. Roots, Capt. L. A. WILLIAMS, Slayton.

To Fort Snelling, Minn., from Fort Leavenworth, Lieut. F. P. FRISCH, Kimball.

To Minneapolis, Minn., as examiner, Capt. R. S. PERRY, Minneapolis.

Missouri

To Astoria, N. Y., from Camp Custer, Lieut O. T. MOREY, Salisbury.

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Lieut. D. J. ROYER, Joplin.

To Camp Meade, Md., from Camp A. A. Humphreys Lieut. D. S. VAN HECKE, Kansas City.

To Carlisle, Pa., from Fort Oglethorpe, Capt. C. S. REHFELDT, St. Louis.

To Fort Des Moines, Iowa, from Jefferson City, Lieut.-Col. A. VON SCHRADER.

To Fort Leavenworth, Kan., from Camp Joseph E. Johnston, Lieut. E. Y. PARE, Leeton.

To Fort McPherson, Ga., from Fort Oglethorpe, Capts. W. E. MEANWELL, Columbia; R. E. NIEDRINGHAUS, St. Louis.

To Fort Oglethorpe, base hospital, from Camp Beauregard, Lieut. R. H. UNDERWOOD, Kansas City; from Camp Sevier, Lieut. H. F. PARKER, Warrensburg; from Camp Zachary Taylor, Lieut. J. C. DONOHUE, St. Louis. Evacuation hospital, from Camp Travis, Capt. J. D. PORTERFIELD, Cape Girardeau.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. W. HUGHES, Leadwood.

To Fort Sam Houston, Texas, base hospital, Capt. G. P. ALTON, Barry.

To Kansas City, Mo., as examiner, Capt. J. G. HAYDEN, Kansas City.

To Newport News, Va., from Camp Leach, Capt. E. S. SMITH, Macon.

To Norfolk, Va., camp hospital, from Fort Oglethorpe, Lieut. W. L. MATLOCK, Sedalia.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.,* base hospital, for instruction, from Fort Oglethorpe, Capt. V. B. KIEFFER, St. Louis.

To Washington, D. C., and on completion, *to Camp Hancock, Ga.,* from Hoboken, Capt. D. E. SCHMALHORST, St. Louis.

To West Baden, Ind., from Camp Dodge, Lieut. T. E. LILLY, Kansas City.

Montana

To Camp Lee, Va., from Camp A. A. Humphreys, Capt. M. D. RIDLE, Shelby.

To Fort Oglethorpe, base hospital, from Camp Joseph E. Johnston, Lieut. E. S. PORTER, Moore.

To Fort Sill, Okla., from Norman, Okla., Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Camp Meade, Md., from Camp A. A. Humphreys, Lieut. R. F. DECKER, Byron.

To Carlisle, Pa., from Camp Zachary Taylor, Lieut. R. J. STEARNS, Omaha.

To Fort Jay, N. Y., from Camp Las Casas, Capt. J. A. STRONG, Kearney.

To Fort Oglethorpe, base hospital, from Camp Jackson, Capt. C. H. NEWELL, Omaha.

To Washington, D. C., and on completion *to Camp Gordon, Ga.,* from Hoboken, Capt. F. A. WILMOT, Bethany. On completion *to Camp Jackson, S. C.,* from Hoboken, Major E. S. TENNEY, Lincoln.

To West Baden, Ind., from Camp Dodge, Capt. A. R. DES JARDIEN, Lincoln.

The following order has been revoked: *To Camp Logan, Texas,* base hospital, Capt. C. A. ALLENBURGER, Columbus.

New Hampshire

To Boston, Mass., for instruction, from Camp Devens, Lieut. E. H. THOMPSON, Hampton.

To Camp Jackson, S. C., base hospital, from Camp McClellan, Lieut. G. S. FOSTER, Manchester.

The following order has been revoked: *To Camp Upton, N. Y.,* base hospital, from Fort Oglethorpe, Lieut. F. E. SPEAR, Woodsville.

New Jersey

To Camp Dix, N. J., from Army Medical School, Lieut. J. J. MANN, Perth Amboy. Base hospital, from Fort Oglethorpe, Capt. G. S. WILLIS, Morristown.

To Camp Jackson, S. C., base hospital, from Camp Sevier, Capt. J. W. FARROW, Dover.

To Camp McClellan, Ala., base hospital, from Camp Jackson, Lieut. C. P. CLARK, Summit. Base hospital, for instruction, from Fort Oglethorpe, Lieut. J. J. BURNE, Newark.

To Camp Meade, Md., base hospital, from Bound Brook, N. J., Lieut. J. T. LEAHY, Bound Brook.

To Camp Meigs, D. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. S. R. FAIRCHILD, Penn's Grove.

To Carlisle, Pa., from Fort Oglethorpe, Capt. W. A. McMURTRIE, Morristown.

To Fort Oglethorpe, base hospital, from Camp Wadsworth, Capt. C. W. EVELETH, West Orange.

To Newport News, Va., from Camp Meade, Lieut. E. B. FUNKHOUSER, Trenton; from Washington, Capt. G. PAYNE, Cedar Grove.

The following orders have been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Lieuts. T. H. PLATT, Dunellen; J. J. LEVY, Ocean Gate. *To Camp Wheeler, Ga.*, Lieut. A. E. OLPP, West Hoboken.

New York

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. G. P. MICHEL, Buffalo. Base hospital, for instruction, from Camp Meade, Lieut. H. F. VAN LOON, Albany.

To Camp Crane, Pa., base hospital, from Camp A. A. Humphreys, Capt. A. A. EPSTEIN, New York; from New Haven, Lieut. D. JUNG, Buffalo.

To Camp Devens, Mass., from Philadelphia, Lieut.-Col. I. M. UNGER, Ithaca.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. M. B. SPONSLER, New York.

To Camp Jackson, S. C., from Richmond, Lieut. S. ZWERLING, Brooklyn. Base hospital, from Camp Logan, Lieut. J. M. BLANK, Brooklyn; from Camp Sevier, Lieuts. D. W. JENNINGS, Catskill; S. McLEAN, New York.

To Camp McClellan, Ala., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Capt. C. A. ROSEWATER, New York.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Major P. W. NATHAN, New York; from New Haven, Major O. TEAGUE, Staten Island.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. H. BURKE, Brooklyn.

To Camp Shelby, Miss., base hospital, for instruction, from Fort Oglethorpe, Capt. J. S. DORIAN, Brooklyn.

To Camp Travis, Texas, base hospital, from Camp MacArthur, Lieut. L. A. BINGAMAN, New York.

To Camp Zachary Taylor, Ky., from the Surgeon-General's Office, Lieut. F. L. GATES, New York.

To Carlisle, Pa., from Fort Oglethorpe, Lieut. F. M. FRANKFELDT, New York.

To Erie, Ohio, from Fort Oglethorpe, Lieut. J. E. WRIGHT, Mendon.

To Ennis, Texas, Barron Field, from Urbana, Lieuts. J. P. FITZGERALD, S. Z. ORGEL, New York.

To Fort H. G. Wright, N. Y., from Hampton, Lieut. S. S. INGALLS, Parish.

To Fort McHenry, Md., from Camp A. A. Humphreys, Lieut. A. MANGIARACINA, Brooklyn; from Camp Upton, Lieut. W. L. SNEED, New York.

To Fort McPherson, Ga., for instruction, from Camp Jackson, Capt. J. H. LEWIS, Buffalo; Lieut. M. R. BOORMAN, New York.

To Fort Oglethorpe, base hospital, from Camp Fremont, Lieut. E. M. JOHNSON, New York; from Camp Jackson, Lieut. G. A. CLARK, New York; from Camp McClellan, Capt. C. J. HUNT, Clifton Springs. Evacuation hospital, from Camp Wadsworth, Lieut. S. O. SHUMWAY, Brooklyn.

To Fort Ontario, N. Y., from Fort Porter, Lieut. B. F. HAUENSTEIN, Buffalo.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. A. S. RULAND, Syracuse.

To Fort Sill, Okla., base hospital, from Camp Sheridan, Lieut. B. WILSON, New York.

To Governor's Island, N. Y., from Fort Jay, Capt. F. L. CHRISTIAN, Elmira.

To Houston, Texas, Ellington Field, from Princeton, N. J., Lieut. P. B. JENKINS, New York.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. B. DUPUY, New York.

To New Haven, Conn., Yale Army Laboratory School, from Camp Lee, Lieut. S. MORSE, New York.

To New York, as examiner, Major J. F. FRASER, New York, College of the City of New York, from Yonkers, Lieut. M. R. KUNSTLER, Yonkers.

To Pittsburgh, Pa., from Camp Lee, Lieut. R. E. MYERS, Cabbshill.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sherman, Ohio, base hospital, for instruction, from Fort Oglethorpe, Capt. I. LEBELSON, New York. On completion to *Camp Zachary Taylor*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. S. GUSHEE, New York.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieuts. S. EPSTEIN, New York; E. B. COOK, Rochester.

To Washington, D. C., from New York, Col. H. D. SNYDER, American University, from Army Medical School, Capt. J. M. Parkhurst, Bath. On completion *to Camp Dix, N. J.*, Camp Devens, and Boston, Mass., headquarters, Northeastern Department, *Camp Upton, N. Y.*, and *Hoboken, N. J.*, from Fort Oglethorpe, Capt. E. L. SWAN, Brooklyn. St. Elizabeth's Hospital, from Camp A. A. Humphreys, Lieut. J. V. SWIERAT, Kings Park. Surgeon-General's Office, from San Antonio, Capt. P. J. LIPSETT, New York.

To Waynesville, N. C., from Camp Pike, Capt. E. P. EGLEE, New York.

To Williamsbridge, N. Y., from Camp Shelby, Capt. J. S. RICHARDS, New York; from Walter Reed General Hospital, Lieut. S. DANZER, Brooklyn.

The following order has been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Capt. A. MARK, Elmira.

North Carolina

To Camp Devens, Mass., as assistant to camp surgeon, from Camp Polk, Lieut. F. H. SPARRENBERGER.

To Camp Jackson, S. C., base hospital, from Camp Wheeler, Capt. S. D. CRAIG, Winston-Salem.

To Camp Logan, Texas, base hospital, from Camp Pike, Lieut. W. B. SHARP, Hertford.

To Dansville, N. Y., from Fort Slocum, Capt. A. DURHAM, Charlotte.

To Fort Bayard, N. M., from Fort Oglethorpe, Capt. W. WYATT, Winston-Salem.

To Fort Oglethorpe, base hospital, from Camp Hancock, Lieut. W. MONCURE, Jr., Hamlet; from Camp Jackson, Capt. N. B. ADAMS, Murphy.

To Otisville, N. Y., from Camp McClellan, Capt. J. R. WILLIAMS, Asheville.

The following order has been revoked: *To Camp Kendrick, N. J.*, from Camp Upton, Capt. L. D. FLOYD, Cerro Gordo.

North Dakota

To Denver, Colo., for instruction, from Fort Riley, Lieut. F. E. WEED, Park River.

To Williamsbridge, N. Y., from Camp Crane, Lieut. W. H. WITHERSTINE, Grand Forks.

Ohio

To Camp Crane, Pa., base hospital, from New Haven, Lieut. C. SATER, Cincinnati.

To Camp Devens, Mass., base hospital, from Syracuse, Lieut. R. A. THORNTON, Columbus.

To Camp MacArthur, Texas, as camp surgeon, from Camp Pike, Lieut.-Col. E. F. McCAMPBELL, Columbus.

To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. S. W. EVANS, Cleveland.

To Camp Sherman, Ohio, base hospital from Camp Zachary Taylor, Capt. A. CROTTI, Columbus; from Fort Oglethorpe, Capt. R. A. GOUDY, Newcomerstown; Lieut. H. A. BUDD, Cleveland.

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. O. R. KACKLEY, Pleasant City.

To Cape May, N. J., from New York, Lieut. J. R. DAVIS, Toledo.

To Cleveland, Ohio, as examiner, Lieut. C. A. BOWERS, Cleveland.

To Detroit, Mich., for instruction, from Fort Oglethorpe, Lieut. D. C. FOX, Kenton.

To Fort Benjamin Harrison, Ind., base hospital, from Camp Zachary Taylor, Lieut. C. C. SHEARER, Cincinnati.

To Fort McHenry, Md., from Walter Reed General Hospital, Lieut. J. F. WILLIAMS, Cincinnati.

To Fort McPherson, Ga., from Camp Shelby, Capt. J. J. LaSALLE, Toledo. For instruction, from Fort Oglethorpe, Lieut. F. C. BISSELL, Akron.

To Fort Oglethorpe, base hospital, from Army Medical School, Major R. D. MADDOX, Cincinnati; from Camp Jackson, Lieut. E. E. BAKER, Cincinnati; from Camp Sevier, Lieuts. T. A. COSTELLO, D. H. PATTERSON, Cleveland; from Camp Wadsworth, Capt. A. N. WISELEY, Ada; from Fort McHenry, Lieut. J. H. BUFF, Cincinnati. To give orthopedic instruction, from Camp Upton, Major A. S. McCLAIN, Lakewood.

To Fort Sheridan, Ill., from Ann Arbor, Lieut. C. W. IRISH, Barberton.

To Hampton, Va., Langley Field, from Morrison, Va., Capt. P. F. DAVIDSON, Cleveland.

To Lakewood, N. J., from Fort Oglethorpe, Capt. L. A. LEVISON, Toledo.

To Montgomery, Ala., from Mineola, Major C. P. GROVER, National Military Home.

To New Cumberland, Pa., from Camp Meade, Capt. F. J. WOOD, Cleveland.

To Plattsburg Barracks, N. Y., from Jefferson Barracks, Lieut. G. H. REEVE, Cleveland.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee, Va.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. M. SCHNEIDER, Cincinnati. On completion *to Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. W. R. GOFF, Cleveland. On completion *to Williamsbridge, N. Y.*, for instruction, from Fort Oglethorpe, Lieut. R. G. MOSSMAN, Youngstown.

To San Antonio, Texas, from Ithaca, Lieut. F. W. THOMAS, Piqua.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. H. MILLER, Columbus.

To West Baden, Ind., for instruction, from Fort Oglethorpe, Capt. M. V. REPLOGLE, Bryan.

Oklahoma

To Camp MacArthur, Texas, base hospital, from Camp Beauregard, Capt. C. E. TAYLOR, Oklahoma City.

To Camp Meade, Md., from Camp A. A. Humphreys, Lieuts. J. A. NELSON, Centrahoma; E. MOSELEY, Millerton.

To Camp Polk, N. C., as camp surgeon, from Camp Devens, Major W. E. HARRINGTON, Wakita.

To Camp Sevier, S. C., base hospital, from Camp Travis, Capt. C. R. DAY, Oklahoma City.

To Camp Travis, Texas, from Fort Riley, Lieut. W. H. KINGMAN, Bartlesville.

To Fort Oglethorpe, base hospital, from Camp Cody, Lieut. G. H. APPLEWHITE, Shawnee.

To Fort Riley, base hospital, from Camp Travis, Lieut. H. M. REEDER, Shawnee.

Oregon

To Camp Lewis, Wash., base hospital, from Lakewood, Lieut. J. M. ODELL, Portland.

To Fort McPherson, Ga., from Boston, Lieut. R. E. WATKINS, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., base hospital, from Camp Sherman, Lieut. H. GOODFRIEND, Scranton.

To Camp Cody, N. M., to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. J. C. BARDIN, University.

To Camp Dix, N. J., base hospital, from Camp Colt, Lieut. F. D. LOHR, Derry.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. G. D. MERVINE, Lock Haven.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. W. H. HAINES, Philadelphia.

To Camp Jackson, S. C., from Tuskegee, Lieut. P. A. NOLL, Glen Rock. Base hospital, from Camp Greene, Capt. W. B. McKENNA, Pittsburgh; from Fort Oglethorpe, Capt. H. W. GASS, Sunbury.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. H. D. JORDAN, Allentown.

To Camp Meade, Md., base hospital, from Camp Upton, Capt. R. M. ALEXANDER, Reading.

To Camp Travis, Texas, base hospital, from Camp Upton, Lieut. W. D. STROUD, Philadelphia.

To Camp Upton, N. Y., base hospital, from Garden City, Lieut. L. N. GAY, Shamokin.

To Camp Zachary Taylor, Ky., from the Surgeon-General's Office, Major J. H. AUSTIN, Ardmore.

To Cape May, N. J., from New York, Lieut. C. A. BEHNEY, Philadelphia.

To Carlisle, Pa., for instruction, from Camp Meade, Capt. C. C. MECHLING, Pittsburgh.

To Corpus Christi, Texas, for instruction, from Fort Oglethorpe, Lieut. C. K. KISTLER, Reading.

To Fort Benjamin Harrison, base hospital, from Camp Zachary Taylor, Capt. H. H. TURNER, Pittsburgh.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. J. O. BOWER, Wyncote. For instruction, from Camp Jackson, Capt. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. T. J. McGURL, Minersville.

To Fort Ontario, N. Y., from Schenectady, Lieut. J. E. MOORE, Carnegie.

To Hoboken, N. J., from Fort Hancock, Lieut. J. M. MONAGHAN, Minersville.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. V. S. WILKINSON, Oxford.

To Philadelphia, Pa., as examiner, Capt. J. W. WEST, Philadelphia.

To Plattsburg Barracks, N. Y., from Camp Dix, Major R. L. HILL, Woodville.

To Richmond, Va., for instruction, from Fort Oglethorpe, Lieut. R. S. HINCHMAN, McKeesport.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. M. COWELL, Athens. On completion *to Camp Meade, Md.*, base hospital, for instruction, from Fort Oglethorpe, Capt. O. G. LEWIS, Washington. On completion *to Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Capt. S. P. GRAY, Chester.

To Walter Reed General Hospital, D. C., from Camp Colt, Lieut. J. W. BANCROFT, Altoona; from Camp Wheeler, Lieut. A. K. DU BELL, Philadelphia.

To Washington, D. C., Surgeon-General's Office, from Americus, Ga., Major W. S. CORNELL, Philadelphia; from Riverside, Calif., Major C. G. EICHER, McKees Rock.

To West Baden, Ind., from Camp Shelby, Capt. C. S. REBUCK, Harrisburg.

To Williamsbridge, N. Y., from Camp Crane, Lieut.-Col. F. B. LUND.

Porto Rico

To Dallas, Texas, from Mineola, Major E. I. VAUGHN, Central Aguirre.

Rhode Island

To Carlisle, Pa., for instruction, from Camp Meade, Lieut. E. S. CAMERON, Providence.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. C. ROBINSON, Providence.

To Mineola, N. Y., Hazelhurst Field, from Princeton, N. J., Capt. A. W. STEVENSON, Newport.

South Carolina

To Astoria, N. Y., from Fort Oglethorpe, Lieut. C. I. GREEN, Orangeburg.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. W. S. ZIMMERMAN, Spartanburg.

To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. W. P. TURNER, Greenwood.

To San Antonio, Texas, from Ithaca, Lieut. J. L. BLAIR, Sharon.

South Dakota

To Fort Oglethorpe for instruction, from Camp A. A. Humphreys, Lieut. N. J. NESSA, Sioux Falls.

To Fort Snelling, Minn., from Camp Grant, Lieut. B. H. SPRAGUE, Huron.

To New Haven, Conn., from Camp Dix, Capt. J. G. CHICHESTER, Redfield.

Tennessee

To Cambridge, Mass., from Boston, Capt. T. E. P. CHAMBERS, Cleveland.

To Camp Crane, Pa., base hospital, from New Haven, Lieut. A. T. SIKES, Nashville. Mobile hospital, from Camp Pike, Major J. W. CUNNINGHAM, Memphis.

To Camp Logan, Texas, from Fort Oglethorpe, Lieut. H. P. CALMES, Memphis.

To Camp Upton, N. Y., from Hoboken, Lieut. J. W. RAGSDALE, Memphis.

To Fort McHenry, Md., from Camp Lee, Lieut. J. H. REVINGTON, Chattanooga.

To Fort Oglethorpe, base hospital, from Fort Logan H. Roots, Lieut. W. H. NILES, Tellico Plains. For instruction, Lieut. R. G. NELSON, Nashville.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. O. J. PORTER, Columbia.

To Plattsburg Barracks, N. Y., from Fort McPherson, Lieut. P. J. TRENTZSCH, Rives.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. B. L. JACOBS, Chattanooga.

Texas

To Camp Logan, Texas, base hospital, from Camp Bowie, Lieut. R. R. ROSS, San Antonio.

To Camp Travis, Texas, from Fort Riley, Lieut. R. L. LONG, Atlanta. Base hospital, from Camp MacArthur, Lieuts. J. S. CALHOUN, A. W. NASH, Dallas.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. A. C. ROGERS, Odell.

To Camp Wheeler, Ga., base hospital, for instruction, from San Antonio, Major W. B. RUSS, San Antonio.

To Fort Oglethorpe, base hospital, from Corpus Christi, Lieut. T. W. GRACE, El Paso; from Fort Douglas, Lieut. J. E. McDOWELL, Shamrock.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. L. RIDLINGS, Sherman.

To New Haven, Conn., for instruction, from Fort Oglethorpe, Lieut. G. HOGG, Edna.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Devens, Mass.*, base hospital, for instruction, from Fort Oglethorpe, Capt. B. F. STEVENS, El Paso.

To Washington, D. C., Surgeon-General's Office, from Camp Bowie, Lieut.-Col. H. D. McINTYRE.

The following order has been revoked: *To New Haven, Conn.*, Yale Army Laboratory School, for instruction, from duty as a contract surgeon, Lieut. M. D. LEVY, Galveston.

Utah

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. T. C. HILL, Huntington.

To Fort MacArthur, Calif., from Hollywood, Lieut. C. G. STIGALL, Salt Lake City.

To Fort Oglethorpe, base hospital, from Camp Logan, Capt. E. R. DUMKE, Ogden.

The following order has been revoked: *To Camp Crane, Pa.*, mobile hospital, from Camp Cody, Capt. G. E. DORLAND, Devil's Slide.

Vermont

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. D. J. CARROLL, Vergennes.

To Fort Myer, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. W. LINDSAY, Montpelier.

Virginia

To Camp Sevier, S. C., base hospital, from Camp Hancock, Lieut. B. E. STRODE, Amherst.

To Fort Adams, R. I., from Fort Oglethorpe, Lieut. W. H. REMINE, Lodi.

To Fort Des Moines, Iowa, from Camp Zachary Taylor, Capt. W. F. HARTMAN, Swope.

To Fort Foster, N. Y., from Fort Ontario, Lieut. C. A. FOLKES, Roanoke.

To Fort McPherson, Ga., from Gainesville, Fla., Capt. H. B. MAHOOD, North Emporia.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. F. H. SMITH, Abingdon; from Camp Wadsworth, Capt. T. H. ODENEAL, Richmond.

To Washington, D. C., Surgeon-General's Office, from Garden City, Major J. N. BARNEY, Fredericksburg.

The following orders have been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Lieut. E. D. WELLS, Chilton Forge. *To Fort Oglethorpe* for instruction, Lieut. R. H. BORCKWELL, Barnetts.

Washington

To Camp Lewis, Wash., from Everett, Wash., Capt. S. D. BARRY, Puyallup. Base hospital, from Fort Stevens, Capt. J. E. PREUCEL, St. John.

To Fort Snelling, Minn., from Camp Travis, Major E. A. RICH, Tacoma.

To Vancouver Barracks, Wash., Capt. F. J. DELANEY, Seattle.

West Virginia

To Fort McHenry, Md., from Fort Oglethorpe, Capt. G. B. CAPITO, White Sulphur Springs.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. W. E. MYLES, White Sulphur Springs.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.*, base hospital, for instruction, from Fort Oglethorpe, Capt. L. K. CRACROFT, Wheeling.

Wisconsin

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. A. J. LOUGHMAN, Oconomowoc.

To Camp Custer, Mich., from Fort Porter, Capt. J. M. CONLEY, Oshkosh.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. H. CARROLL, Milwaukee.

To Camp Jackson, S. C., base hospital, from Camp Cody, Lieut. E. R. MURPHY, Antigo.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Fort Oglethorpe, Capt. W. A. PROUTY, Burlington.

To Camp Meade, Md., from Camp A. A. Humphreys, Lieut. J. M. ROSS, Bloom City.

To Camp Travis, Texas, base hospital, from Camp Pike, Capt. C. O. LATHAM, Green Bay.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. W. G. DARLING, Milwaukee.

To Dansville, N. Y., from Camp Custer, Capt. W. T. KRADWELL, Wauwatosa.

To Fort Des Moines, Iowa, for instruction, from Fort Oglethorpe, Capt. W. A. LADWIG, Wausau.

To Fort Oglethorpe, base hospital, from Camp Zachary Taylor, Capt. B. E. SCOTT, Berlin.

To Fort Sheridan, Ill., for instruction, from Camp Colt, Major S. E. GAVIN, Fond Du Lac.

To Otisville, N. Y., from Markleton, Capt. L. W. DUDLEY, Milwaukee.

To Plattsburg Barracks, N. Y., from Camp Sherman, Capt. J. F. WENN, Milwaukee.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Wadsworth, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. R. W. JONES, Wausau.

The following order has been revoked: *To Carlisle, Pa.*, from Camp Crane, Capt. W. HECKER, Beloit.

Wyoming

To Wichita Falls, Texas, from San Antonio, Lieut. J. T. McBRIDE, Dayton.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surgeon E. A. SWEET, proceed to New York, for conference with the Secretary of the National Tuberculosis Association in regard to tuberculosis in the southwest.

Passed Asst. Surg. W. F. DRAPER, proceed to Washington, D. C., for temporary duty in connection with the Medical Reserve Corps of the Public Health Service.

Passed Asst. Surg. J. H. LINSON, proceed to Baltimore, Md., for conference regarding venereal disease clinics in the state of Maryland.

Passed Asst. Surg. J. G. WILSON, proceed to necessary points in the states of Ohio, Virginia, and West Virginia for inspection of nitro plants, with a view of taking them over for use as hospitals for the War Risk Insurance Bureau.

Asst. Surg. R. R. SAYERS, proceed to Joplin, Missouri, and other points in that vicinity for the purpose of establishing a tri-state sanitary district.

Asst. Surg. V. B. MURRAY, report for duty to Surgeon G. W. McCOY, San Francisco, Calif., for duty in experiments relative to the value of influenza vaccine.

Asst. Surg. H. S. MUSTARD, proceed to Wheeling, W. Va., to promulgate regulations necessary to prevent the interstate spread of influenza.

Asst. Surg. R. C. SANDIDGE, proceed to Alexandria, Va., to assume charge of Service activities at that place.

Acting Asst. Surg. B. E. ROBERTS, report to Surgeon W. H. FROST at Washington, D. C., for duty in connection with studies of the epidemiology of the recent epidemic of influenza.

Consulting Hygienists S. M. HAMILL, L. EMMETT HOLT, and J. P. SEDGEWICK, proceed to Washington, D. C., for conference in regard to questions relative to the improvement of the health of the coming generations.

Asst. San. Engr. A. J. SMALSHAF, relieved at Waco, Texas. Proceed to Columbus, Ga., for duty in extracantonment sanitation.

Asst. Educational Director W. P. GREEN, proceed to Philadelphia, Pa., to deliver a lecture before the Poor Richard Advertising Club.

Asst. Educational Director ROBERT D. LEIGH, proceed to Rochester, N. Y., to attend a meeting of the National Municipal League in regard to venereal disease control.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Gavin J. Telfer, San Francisco, state health officer for the southern district, has been appointed to succeed Dr. Edward A. Ingram as state health officer in charge of the South Coast District. Dr. Ingram has been transferred to Sacramento.

Advice for Postinfluenza Period.—Health Officer Dr. Daniel Crosby of Oakland, in notifying the city council that it was the judgment of the health depatrment that influenza masks could be dispensed with November 20, made the following suggestions for the guidance of the people during the postepidemic period while there was a possibility of the recurrence of the disease, and while it was certain that there would still be a few cases occurring:

All persons convalescing from influenza should wear masks when going about, until three weeks after the beginning of the illness; all members of the family of the patient should wear masks for a like period. All persons finding themselves "taking cold" should wear masks while going about and while in contact with others. All employers should request, and see to it, that all employees suffering with what are commonly called "acute colds" or "fresh colds" wear masks while at work and in contact with their fellow employees or the public. The school department should cooperate in the same way with reference to both teachers and pupils. It was also suggested that persons working in neighboring cities requiring masks should continue to wear masks while in those cities.

ILLINOIS

Unlicensed Practitioner Punished.—August Labraich, Chicago, is said to have been fined $25 and costs, November 21, for practicing medicine without a license.

Sanatorium Closed.—The Weirick Sanitarium, Rockford, for the treatment of drug and liquor addicts, formerly the Broughton Sanitarium is reported to have been closed.

Proposed Union of Hospitals.—A committee of seventeen has been appointed to formulate plans for taking over the Alice Home Hospital and Lake Forest Hospital, Lake Forest, combining them into one institution.

Tuberculosis Dispensary Moves.—The free tuberculosis dispensary, for the examination and treatment of patients suffering from tuberculosis in Peoria, has been moved from 310 Chestnut Street, to 1300 Adams Street, and will be open every Saturday morning from 9 o'clock until noon.

Tuberculosis Nurses Form Union.—Thirty-four nurses enrolled in a newly formed labor union at the Municipal Tuberculosis Sanatorium, Chicago, recently. The union is affiliated with the Federation of Labor, a charter having been secured through the president of the Woman's Trade Union.

Personal.—Dr. Henry F. Hooker, Danville, has been appointed local physician and surgeon to the Illinois Traction Company, to succeed Dr. George Steely, who has resigned to enter the military service.——Dr. Arthur F. Schuettler, Chicago, was injured, November 22, in a collision between motor cars, sustaining fractures of the collar bone, nose and two ribs.

Diphtheria.—The *Bulletin* of the health department of Chicago calls attention to the considerable increase of diphtheria in October over September. In the latter month there were 423 cases and 41 deaths, or 10 per cent.; in October there were 607 cases and 98 deaths, or more than 15 per cent. In attempting to determine the responsibility for the 139 deaths from diphtheria during the two months, it was found that in about 51 per cent. of the cases the parents had not called a physician, and that in about 49 per cent. the physician had failed to make a prompt diagnosis, which delayed the administration of antitoxin.

MARYLAND

Hospital Opened.—The South Baltimore General Hospital was formally opened during the past week. Drs. Llewellys F. Barker of the Johns Hopkins University and Jane E. Nash, superintendent of the Church Home and Infirmary, made the principal addresses.

Personal.—Dr. Alexander C. Gillis, former superintendent of Sydenham Hospital, Baltimore, on duty on the Western Front, has been wounded.——Dr. Albert F. Conrey, Baltimore, formerly resident physician at Mercy Hospital, has accepted an appointment as a member of the medical staff of the leper colony at Molokai, Hawaian Islands.

Violation of Antinarcotic Law.—Dr. James A. Melvin, Baltimore, is said to have been found guilty, November 19, of violation of the Harrison Narcotic Law and to have been sentenced to imprisonment for six months. Dr. Melvin is charged with having prescribed narcotic drugs for soldiers at Fort Meade, and pleaded guilty to the charge.

Psychiatrist to Aid Police Department.—Investigation of circumstances surrounding future mysterious murders and suicides will be handled strictly on a scientific basis, according to a special order issued by Marshal Carter and transmitted to the district police captains. Dr. John Rathbone Oliver, Baltimore, who was appointed psychiatrist to the criminal courts in Baltimore several months ago, will in the future lend his scientific knowledge to the end of crime solution. He is now visiting physician at the clinic and devotes much time to work in the courts.

Making Influenza Survey.—Ten canvassers, under the direction of Capt. H. F. Smith, S. C., U. S. Army, and H. W. Streeter, sanitary engineer of the United States Public Health Service, are making a government survey in Frederick to ascertain facts concerning the spread and character of the recent influenza epidemic. The city has been marked off into districts and about 25 per cent. of the population will be reached. A house-to-house canvass is being made. This city was selected as an agricultural center, and it is understood that the rural districts of the country will be canvassed later. Maryland was selected for the survey because better records were kept here than in most states. Places have also been marked to take data in Baltimore, Cumberland, and probably Salisbury. Captain Smith has been in the service at Camp Beauregard, Louisiana, and while there studied at first hand many cases of influenza as well as the manner of its communication.

MINNESOTA

Personal.—Dr. Herbert F. Gammons, formerly superintendent of the Deer Wood, Minn., Sanatorium, has been appointed director of the publicity bureau of the Texas State Sanatorium, Carlsbad.——Dr. George S. Wattam, Warren, has been appointed temporary epidemiologist to the state board of health.

MISSOURI

Personal.—Prof. Dennis E. Jackson of Washington University, St. Louis, has been appointed professor of pharmacology in the University of Cincinnati.

Election Returns.—At the annual meeting of the St. Louis Medical Association, the following officers were elected: president, Dr. William Engelbach; vice presidents, Drs.

Rudolph S. Vitt and George F. Chopin, and secretary, Dr. Albert F. Koetter.

Influenza Dominant.—In the report of morbidity and mortality for St. Louis for the week ended November 23, of the 937 cases reported 816 were of influenza, and of the 154 deaths reported, 131 were due to that cause.

MONTANA

Personal.—Dr. Alonzo D. Eckerdt, Helena, left November 24, for a special training course at Yale University.——Dr. Phoebe A. Bottorf, Kalispell, while making a professional call and standing in the road preparing medicine for a patient, was run down by an automobile and seriously injured, the injuries necessitating the amputation of one leg above the knee.——Dr. Bennet S. Rundle, Billings, has been appointed acting assistant surgeon, U. S. P. H. S., and assigned to temporary station at Rapelje.

NEW JERSEY

Hospital for Foreign Sailors.—Word has been received from Washington that the hospital at the immigration station at Gloucester, which was opened during the epidemic period to sailors stricken with the influenza, will be continued as a hospital for foreign sailors.

Personal.—Dr. Guy Payn, medical director of the Essex County Hospital for the Insane, Overbrook, who has been called into the military service, has been granted leave of absence until December 31.——Dr. Fred A. Pringle has been appointed assistant on the medical staff of the Essex County Hospital for the Insane, Overbrook.

Tuberculosis Conference.—The Third Joint Tuberculosis conference was held at Perth Amboy, November 23. In the sociologic section employment for discharged soldiers was discussed as well as the Red Cross Christmas Roll Call, the Modern Health Crusade movement, and the effects of recent legislation on the tuberculosis cause. In the clinical section the new Army standards and the necessity for accuracy in the diagnosis of tuberculosis were discussed, and Dr. David R. Lyman, New Haven, Conn., president of the National Association for the Study and Prevention of Tuberculosis, detailed his experiences with the American Red Cross in France.

NEW YORK

Justices Must Report Prostitution Convictions.—The attorney general of the state has recently sent a letter to all justices of the peace of the state, calling their attention to the amendment of the Public Health Law, made by the legislature of 1918, by which it becomes obligatory for such justices to report to the local board of health all persons convicted under the various laws relating to prostitutes and prostitution, in order that the board of health may determine the presence or absence of venereal disease in such persons.

Typhoid at Herkimer.—One hundred and five cases of typhoid fever were reported from the village of Herkimer during October. This outbreak occurred conjointly with the influnza epidemic, and since, notwithstanding a provision of the state sanitary code requiring Widal tests in all cases suspected of being typhoid, a number of physicians failed to confirm their diagnosis by agglutination tests, there is a possibility that a few of these cases may have been influenza. The outbreak was clearly the result of the use of polluted water. For several days during September polluted water was pumped into the mains from West Canada Creek, and from the hydraulic canal while the chlorinating apparatus was not in operation. The municipal water commission of Herkimer had been previously warned of the danger of permitting the use of raw water from this source. Twenty-five additional cases had been reported up to November 23, but most of these were in all probability secondary to previously existing cases.

New York City

Personal.—Dr. Anthony Bassler has been appointed professor of gastro-enterology at Fordham University.——Dr. Henry E. Pfiug, Brooklyn, and Dr. Charles F. W. Horn have been appointed temporary police surgeons.

Sentenced for Illegal Practice.—Henry Miller, Brownsville, Brooklyn, charged with the illegal practice of medicine, is said to have been found guilty and to have been sentenced, November 19, to imprisonment for four months in the Kings County jail.

Safety Institute Changes Name.—The supreme court has granted permission to the American Museum of Safety to change its name to the Safety Institute of America. The institute has plans for the extension of its activities during the coming year.

Anniversary Address.—The anniversary address of the New York Academy of Medicine was delivered, December 5, by Edwin G. Conklin, professor of biology in Princeton University, on "The Biology of Democracy with Especial Reference to the Present World Crisis."

Medical Society of the County of New York Elects.—At its one hundred and thirteenth annual meeting, held November 25, the Medical Society of the County of New York elected the following officers for the ensuing year: president, Col. Charles Howard Peck, M. C., U. S. Army; first vice president, Dr. Charles H. Chetwood; second vice president, Dr. George Gray Ward, Jr.; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. J. Milton Mabbott; treasurer, Dr. James Petersen, and censors, Dr. William S. Gottheil, Dr. Gustav G. Fisch and Dr. Herbert B. Wilcox.

Debarkation Hospital Opens.—Army Hospital No. 3, at Eighteenth Street and Sixth Avenue, formerly the Greenhut Building, was opened, November 23, to receive its first consignment of wounded and convalescent soldiers. On that day 426 American soldiers and twenty-four officers were transferred from an incoming transport to the hospital, from which they will be distributed to other hospitals and institutions for convalescent soldiers. The hospital is headed by Major William J. Monaghan of the Medical Corps and is prepared to care for from 3,000 to 4,000 men.

PENNSYLVANIA

Personal.—Dr. Evan O'Neill Kane, Kane, who has been seriously ill as the result of roentgen-ray burns, is reported to be out of danger.——Dr. Edward H. Gingrich, city health officer of Lebanon, who has been seriously ill, is reported to be improved.

Appreciation of Volunteer Workers.—Dr. B. Franklin Royer, Harrisburg, acting commissioner of health, has sent a note of appreciation to the thousands of volunteers, doctors, nurses, and others who so loyally and unselfishly assisted in the care of the sick during the recent epidemic of influenza in the state.

Society Anniversary.—The fortieth anniversary of the founding of the Lackawanna County Medical Society was celebrated, November 19, in the rooms of the society at Scranton. Addresses were delivered by the only two surviving charter members of the society, Dr. Louis H. Gibbs, West Scranton, who spoke on "Organization," and Dr. Sumner D. Davis, Jermyn, who delivered an address on "Disadvantages of the Physician in Olden Times."

Memorial Building for Hospital.—Pierre S. Dupont has presented $300,000 to the West Chester Hospital for the erection of a building in "memoriam" of Lewis Mason, who was Mr. Dupont's chauffeur, and who died of influenza during the epidemic. The money has been made immediately available and plans for the new building are being prepared. The old main building is to be torn down and will be replaced by a steel and concrete building. The wings on either side of the present building—both memorials—will be retained.

Officers for Orphan Committee.—Dr. B. Franklin Royer, acting commissioner of health, has appointed Dr. Nathan C. Schaffer, Harrisburg, superintendent of public instruction, as chairman, and Dr. Samuel McClintock Hamill, Philadelphia, chief of the division of child hygiene, secretary of the committee appointed to collect information as to the commonwealth surrounding the number of children who were rendered orphans because of the recent epidemic of influenza in the state. Dr. Wilmer R. Batt, Harrisburg, state registrar of vital statistics, was appointed statistician of the committee.

Philadelphia

Cost of Epidemic.—At the next session of city councils a request will be made by Director William Krusen for a special appropriation to meet the expense incurred by the municipality in fighting the recent influenza epidemic and the actual expense for service and materials furnished will amount to about $75,000.——According to the report of the health department for the week ending November 30, influenza caused twenty-six deaths, sixteen of which were of adults, and pneumonia caused thirty-one deaths, of which twenty-seven were of adults.

Personal.—Dr. Astley P. C. Ashhurst, who went to France as a major in command of Base Hospital No. 34, unit of the

Episcopal Hospital, has been promoted to the rank of lieutenant-colonel and placed in charge of all the hospitals in the Mantes Sector. His place as director of Base Hospital No. 34 has been taken by Dr. Emory G. Alexander.——Dr. Hyman I. Schenker has been made assistant school medical inspector, and Dr. Edward Haentze has been appointed outdoor physician, bureau of health and charities.——Dr. John Leo Donahue, who has been serving with the British Army, has been commissioned captain in the American Army.

Influenza Conference.—A conference on the influenza epidemic, attended by medical men from the South, middle Atlantic states and New England states, was held at the hygiene laboratory, at the University of Pennsylvania, November 29 and 30. Dr. Wilmer Krusen, director of public health and charities, presided at the sessions. According to Dr. Krusen, figures obtained in Philadelphia showed little difference in the death ratio between whites and negroes, and the density of population appeared to have no effect on the spread of the epidemic as there were 118 deaths in the thickly settled third ward while there were 295 deaths in the twenty-second ward. Among the speakers were: Dr. Edwin W. Kopf, New York, chairman of the vital statistics of the American Health Association; Prof. R. E. Chaddock and Prof. C. C. Grove of Columbia University, Dr. William H. Guilfoy of the Department of Health in New York City and Dr. Frederick L. Hoffman, Newark, N. J., of the Provident Life Insurance Company. This conference was preparatory to the American Public Health Association's convention in Chicago, to be held the second week in December.

SOUTH CAROLINA

Action Taken on Noncompliance with Epidemic Closing Regulations.—In resolutions passed unanimously by the city board of health of Charleston, November 20, the action of the authorities of the Cathedral of St. John the Baptist in holding services, November 3, during the epidemic of influenza, in contravention of the regulations adopted by the health authorities with the approval of the local medical society and others of the local profession, was severely censured, in lieu of more drastic action that might have been taken under the powers of the board. This was the only notable instance in which the quarantine measures of the health authorities were violated during the epidemic, cooperation with the health board being otherwise commendably carried out. In a similar violation of the regulations of the city and health authorities in Los Angeles by members of the Christian science church the supreme court of the state upheld the validity of the ordinance requiring closing, and denied writs of habeas corpus in the cases of five men arrested for its violation by holding a meeting in the church during the epidemic.

TEXAS

State Board Meeting.—The Texas State Board of Medical Examiners held its semiannual meeting in Dallas, November 19 to 21. The eleven members of the board representing the entire state and the various physicians of medicine and osteopathy examined about thirty applicants.

Personal.—Dr. William A. Davis, state registrar of vital statistics, Austin, and secretary of the state board of health for the last five years, has received an offer from the state of Georgia for a similar position at an increased salary. ——Dr. Guy H. Reed, Beaumont, has been appointed a member of the state board of health, to succeed Dr. Louis M. Weinfield, San Antonio, who has resigned.

WISCONSIN

Hospital Opened.—The South Side Hospital, Oshkosh, has recently been opened under the charge of Dr. John E. Schein.

Sanatorium for Grant County.—At the meeting of the county board of Grant County held at Lancaster, it voted unanimously for the construction of a tuberculosis sanatorium.

Personal.—Dr. James P. Lenfestey, DePere, has been elected county physician of Brown County, to succeed Dr. Frank L. Crikelair, Green Bay, who is going overseas.——Dr. John R. Hughes, Dodgeville, has been appointed local surgeon for the Chicago and Northwestern System, to succeed Dr. Walter S. Lincoln, deceased.——Seth M. B. Smith, Wausau, has returned to America, after serving as director of a hospital for refugees at St. Etienne, France.

CANADA

Hospital News.—Major Thomas D. Archibald, Toronto, has been placed in command of the Rosedale Military Hospital, Toronto. It has a capacity for 2,000 soldiers. Major Archibald was transferred from Whitby, Ont., where he held a similar position.——The Guelph Ontario Military Hospital will probably be changed into a hospital for convalescent soldiers with tuberculosis. The first lot of tuberculous soldiers has arrived, seventeen having been transferred from Gravenhurst. The present medical staff will remain in charge of the institution.——A consolidated military hospital scheme is proposed for Victoria, B. C. The city has offered the site for the central institution, the loan to extend for two years after the termination of the war.——The Jordan Memorial Hospital, New Brunswick, has passed into the hands of the Invalided Soldiers' Commission of Canada. The federal authorities have taken a five-year lease of the institution; and civil patients will be cared for at a rate of $15 per week. This hospital was presented to the province originally by Mrs. J. Clarke Jordan, and she is quite willing the soldiers should have the institution.——The Balfour Sanitarium for the Treatment of Pulmonary Tuberculosis, British Columbia, has been changed from a military to a civilian hospital. At the present time Captain Olson is on indefinite leave of absence from the C. A. M. C. and is acting as medical superintendent in charge.

Public Health Notes.—Col. John W. S. McCullough, Toronto, provincial health officer for Ontario, states that placarding and quarantine is not required in Ontario for influenza. While such laws are in force in certain states of the American Union and also in some provinces of Canada, the majority —four-fifths of medical officers of health in the two countries —give it as their opinion that any such laws are incapable of enforcement. At the outset of war the Dominion government was without facilities for a supply of typhoid vaccine and the Ontario Board of Health alone of all the provinces had such facilities. That board has supplied gratuitously to the Department of Militia and Defense about $250,000 worth of typhoid and paratyphoid vaccine, which has proved an invaluable aid for the prevention of those diseases among soldiers.——A central board of health is now being advocated by the medical fraternity for the border cities of Ontario; and an active movement is on foot to bring about amalgamation of the different boards of health of the cities concerned. One central office and one central medical officer of health would enable the Ontario Department of Health to be more efficiently managed.——The medical profession of Halifax, N. S., answered the urgent call of the state of Massachusetts for assistance to fight the spread of influenza, and a detachment of nurses and doctors was sent which was immediately acknowledged by Governor McCall.

GENERAL

Improving City Milk Supplies.—During the last year the Dairy Division of the United States Department of Agriculture, through its specialists, has given assistance to thirty-six cities in fourteen states in the sanitary production and handling of milk. In addition, assistance was given by the United States Public Health Service in the way of sanitary milk surveys, etc., in fifteen extracantonment zones. In the assistance rendered by the government to local communities all phases of city milk supply are covered, such as inspection of dairies, milk plants and other distributing centers, analysis, chemically and bacteriologically, of milk samples, and, when necessary, help in the installation of laboratories and technic and in the interpretation of the results of chemical and bacterial analyses. Advice is also offered in framing ordinances to cover dairy and milk conditions, and milk contests are encouraged for the purpose of creating rivalry among dairymen, which tends to improve the milk supply. In these contests experts from the department act as judges in scoring the product.

Influenza.—In general, influenza continues to abate throughout the country, though there are some cities and some sections in which there is a recrudescence or an accession of the disease. Kansas is one state in which the disease appeared to be increasing the latter part of November, as indicated by reports from Concordia, Leavenworth and Topeka. At Butte, Mont., there seemed to be an exacerbation, and physicians were rebuked for not promptly reporting new cases. November 25, the Public Health Service was asked to send physicians and nurses to the coke district in Fayette County, Pa., on account of the disease. At Scranton, Pa., up to November 22, there had been 5,992 cases with 778 deaths. The disease was abating rapidly. In New York state on about the same date the disease had practically subsided. A number of municipalities in the western part of the state, where outbreaks had been more recent, reported temporary increases

in the number of cases following the peace celebrations. Up to that time 257,758 cases had been reported in the state outside of New York City. In *Public Health Reports*, November 22, appears a continuation of the tabulated record of cases throughout the country, as reported to the U. S. Public Health Service, together with an account of influenza among the soldiers abroad, covering the time up to October 21.

Orthopedic Journal Expands.—It is announced that the *American Journal of Orthopedic Surgery*, the official publication of the American Orthopedic Association, which has been the only journal in the English language devoted to orthopedic surgery, will now extend its field of activity and will become also the organ of the newly-formed British Orthopedic Association under the name of the *Journal of Orthopedic Surgery*. This has been brought about through the increased interest and importance of the subject of orthopedics on account of the war. It is believed the purposes of the orthopedic branch of surgery will be best served by the amalgamation, an idea long cherished by Lieut.-Col. Robert B. Osgood, M. C., U. S. Army, Boston, who promoted the establishment of the American journal. The journal will be published from the present offices in Boston under the management of Ernest Gregory. The committees appointed by the British Orthopedic Association consist of R. C. Elmslie, M.S., F.R.C.S., editor, London; T. R. Armour, F.R.C.S.; W. H. Trethowan, F.R.C.S., and H. Platt, M.S., F.R.C.S.; while Charles F. Painter, M.D., Boston, and Robert W. Lovett, M.C., Boston, comprise the committee appointed by the American Orthopedic Association. Miss Hannah Lissner, Boston, has been appointed in charge of the editorial department of the journal in America.

FOREIGN

Deaths Abroad.—Dr. **Joseph Kidd**, London; M. R. C. S., England, 1846, M. D. U. K. C. Aberdeen, 1853; aged 94; one of the most notable homeopathic practitioners of England, and physician to Lord Beaconsfield; died at his home, in Blackheath Park, recently.——**Jose Palomeque**, one of the leading Mexican physicians established in Havana, Cuba, a graduate of the University of Paris; a practitioner for more than fifty years; died in Lenox Hill Hospital, in New York City, October 30.

CORRECTION

Method for Staining the Diphtheria Bacillus.—We are informed by Capt. F. A. Beck that in his article published July 13 with this title, the following change should be made: Bismarck brown 0.480 mg. should be 0.480 gm. In the article published Nov. 16, 1918, under the title "Method for Preparing the Eosinate of Methylene Blue and Method for Staining" eosin yellowish (water-soluble) 0.470 mg. should be 0.470 gm. and methylene blue 0.400 mg. should be 0.400 gm.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Cuban Donations for the War Victims.—The *Cronica Medico-Quirurgica* of Havana states that the official committee appointed by the government to distribute the funds voted in aid of the victims of the war, has sent $125,000 to France; $80,000 to Belgium; $100,000 to Italy, and $100,000 to England. These sums are the state donations and do not include the gifts by private individuals. The Cuban Red Cross has received half a million which it has devoted to the same purposes.

The Motile Bacillus of Influenza.—At the meeting of the Academia de Ciencias of Havana, November 22, Dr. L. Plasencia, a leading microscopist, presented evidence that a coccobacillus isolated by him constantly from the sputum in cases of true influenza bears a causal relation to the disease. It was not found in other diseases, and it reproduced in monkeys a disease closely similar to influenza in the human. The coccobacillus in question is a little broader than the Pfeiffer bacillus, its minimal length about 0.6 micron, its extreme length (only in cultures) 2.1 micron, the average about 0.9. In width it varies from 0.1 to 0.3 micron. The grouping is characteristic as each bacillus is separate, even when in clusters. It takes the anilin stains but requires a little longer contact than other bacilli. The most characteristic feature is its motility, equal to that of certain strains of paratyphoid bacilli. As he knows of no previous description of this bacillus, he has named it the *Bacillus influenzae motilis*.

CUBA LETTER

HAVANA, Nov. 20, 1918.

The Epidemic of Influenza

There are at present about 12,000 cases of influenza in Cuba; but the epidemic is relatively mild, as the cases of bronchopneumonia represent only 3 per cent. of the total, and the statistics show the death rate to be slightly above 1 per cent. The communities in which the disease is most prevalent are Camaguey, with 4,000 cases, and Santiago de Cuba, with 3,000.

The Sociedad de Estudios Clinicos of Havana dedicated an extraordinary meeting to the study and discussion of the epidemic; Dr. L. Ortega, who was appointed speaker, condemned the use of vaccines as a routine measure and said that he saw no scientific basis for the widespread use of antidiphtheric serum against pneumonia and bronchopneumonia. There is no specific treatment for the disease that we call influenza, and until the discovery of the germ puts us on the road to the truth, we can do no more than undertake symptomatic treatment.

DR. PLASENCIA'S RESEARCH WORK

Dr. L. Plasencia, professor of microscopy of the University of Havana, has discovered in the sputum and in the throat of individuals attacked with the present epidemic disease a new micro-organism which at first they thought to be Pfeiffer's but which later they found to be motile, to grow in ordinary mediums as well as in blood agar, and to produce in monkeys a typical attack of the disease: sudden high temperature, catarrhal symptoms and great prostration. The curve of the temperature takes exactly the same course as in human cases. Dr. Plasencia asserts that he has found this germ, which he believes to be specific of the disease, in 90 per cent. of the cases he has examined. Dr. Plasencia is a well known and reliable man, and is not a vaccine manufacturer.

National Federation of Physicians

At the last regular meeting of the Sociedad de Estudios Clinicos, Dr. A. Salcines delivered an address proposing the union of all the physicians of Cuba in a national federation. According to Dr. Salcines' proposition, every physician should belong to the federation and should not be allowed to practice without his membership certificate. In this manner all quacks and unregistered physicians would be put out of business, as well as those graduated physicians who do not carry their practice under strictly ethical conditions. The society took under consideration Dr. Salcines' idea and appointed a commission to study the foreign as well as the home legislation on the matter.

Death of Dr. J. A. Clark

Dr. J. A. Clark, former director of the municipal medical service of Havana, died at his home, November 18, from cerebral hemorrhage. Dr. Clark was at the time of his death director of charities of the republic.

PARIS LETTER

PARIS, Nov. 7, 1918.

International Scientific Relations After the War

The Académie de Médecine appointed a special committee to consider this question. The commission consisted of Professors Laveran, Albert Robin, Achard and Drs. Regnard and Siredey. October 15, the Academy, believing personal relations between scientific men of the two groups of belligerents to be impossible until reparation and expiation of the crimes which have put the Central Empires under the ban of humanity permit them again to enter the concert of civilized nations, adopted the following resolutions submitted by the committee:

1. The Central Empires shall be compelled by a provision of the treaty of peace to retire from international scientific associations established by diplomatic conventions and implying personal relations between the members. This exclusion would not apply to common action solely concerning administrative relations indispensable between such public services as those affecting the regulation of navigation, railways, telegraphs, etc.

2. As soon as circumstances allow, those international conventions not belonging to the two categories noted above shall be dissolved by each of the competent groups of the Entente and of the United States of America in accordance with the statutes and regulations of each of them. New associations recognized to be needed for the progress of the

sciences and their application shall be established forthwith by the Allies and the United States, with the eventual cooperation of neutrals.

3. The governments of the allied countries and of the United States shall refrain from sending delegates to any international assembly at which representatives of the Central Empires would be expected to figure. It is desirable that the citizens of the Entente countries and of the United States should adopt the same line of conduct and not take part in any enterprise in which the citizens of the Empires would collaborate.

4. Inquiry should be made as to the steps to be taken to establish intimate collaboration between the Allies and the United States, particularly in the domain of allied science and in the publication of certain bibliographic works.

Anti-Influenza Measures in Schools

The prefect of the Seine district has instructed the mayors, medical inspectors and principals of the schools of Paris and of the département de la Seine to take the following measures with regard to the present epidemic of influenza: (1) Stop all meetings in school buildings; (2) inquire as to the reason for absence of any pupil, and inform, without delay, the bureau of medical inspection of schools of the results of such inquiry; exclude every child from the school who presents any symptoms of indisposition, and have him taken home, notifying the family to secure medical attendance for the child at once; (3) advise families to keep their children at home if they do not feel well; (4) exclude from school the brothers and sisters of the patient. The principal of the school should inform the principals of the schools attended by the brothers and sisters of their own pupils suspected of having influenza; (5) clean the floors and blackboards and desks often with Javelle water, creolin or a 20 per cent. aqueous solution of liquor formaldehyd; (6) do not close down the whole school, but dismiss for fifteen days all classes three fourths of whose membership is absent because of influenza; the school medical inspector may, however, close the school if the situation is grave; (7) proper antisepsis of the nasal fossae.

The Germans and the Pasteur Institute of Lille

The *Figaro* recently published a letter written by Dr. Calmette, October 15, and addressed to the mayor of Lille. Dr. Calmette, who had remained at the head of the Lille Institut Pasteur ever since the German invasion, in this letter protested against the Germans taking away the last three horses which had been used for the production of antidiphtheritic serum. A veterinary had pronounced these horses as being unfit for any service; they were not even shod, and they were absolutely needed by the institute for the production of diphtheria antitoxin. His protest was ineffective, although this action was a violation of the Hague peace conventions, an infringement of the rights of men, and an act of gross inhumanity because it deprived the already sorely tried and unfortunate civil population of the much needed serum for the treatment of diphtheria, especially at a time of the year when this disease is of common occurrence among children. Calmette says that at the proper time he will bring this matter to the attention of all learned societies the world over. Calmette's wife was taken to Germany last year as a hostage.

The Bread Ration of Young Soldiers

During the duration of the influenza epidemic, the soldiers of the class of 1919 who are still in the garrisons will be allowed a bread ration of 700 to 800 gm.

Helping to Fight Influenza

The under-secretary of state of the Service du Santé militaire has placed the mobilized physicians at the disposition of the civil population whenever there is an insufficient number of physicians in any given vicinity. The medical members of the class of 1888 (50 years of age) and older ones, can be sent to points where medical aid is demanded by the needs of the moment. The under-secretary has also asked convalescing physicians to help out, if their state of health permits, and render such service as they can wherever they may happen to be stationed.

Leading Citizens of Lille Protest Against German Atrocities

At the meeting of the Académie de médecine held October 29, the secretary read a letter signed by Dr. Calmette, director of the Institut Pasteur at Lille, M. Parenty, director of the tobacco manufacturers of Lille, and M. Witz, professor on the science faculty of Lille, in which these savants protest against the infamous treatment imposed on the people of Lille by the German authorities. The Academy declared itself as being in sympathy with the writers of the letter, and voted a resolution to the effect that henceforth it would not collaborate with any German publication, nor participate in any scientific meetings or any international congress with German colleagues who have not previously publicly stated their disapprobation of these outrages committed by their government during the war. This letter was also read before the Académie des Sciences at its meeting held October 30.

School for the Blinded at Lille

The war fund for blinded soldiers and sailors founded by Mr. and Mrs. George A. Kessler of New York will supply the money needed to open an institute at Lille for the blinded soldiers of northern France who wish to return near their homes in the territory recently evacuated by the enemy. This decision was taken on request of the French government. More than 200 blinded French soldiers who came from the northern provinces are now resident in the numerous asylums distributed throughout France.

Deaths

Dr. Viault, professor of general anatomy and histology in the Bordeaux medical faculty is dead; likewise, Dr. Albert Auvray, formerly director of the school of medicine and pharmacy at Caen.

Professor Paul Dubois of the University of Berne, author of many publications on diseases of the nervous system, died recently at Berne, aged 70.

Personal

At its last meeting, the Académie des Sciences unanimously elected Marshall Foch *académicien libre* to succeed the late professor Léon Labbé.

LONDON LETTER

LONDON, Nov. 5, 1918.

The National Physique

In the *Observer*, Prof. Arthur Keith discusses the question of the national physique. He refers to the declaration of the prime minister, Mr. Lloyd George, who asked the minister of national service, "How many more men could we have put into the fighting line if the health of the country had been properly looked after?" and was told, "At least one million." In the course of voluntary work at the ministry of national service, Prof. Keith obtained the results of the surveys that are being carried out all over the country by the medical boards in the examination of recruits, and finds that the prime minister has understated the seriousness of the position. Dividing the population into four grades, he considers that if 1,000 young men be taken at random and graded according to their physical fitness, the following should be expected under good conditions: Grade 1, 700; Grade 2, 200; Grade 3, 75; Grade 4, 25. Grade 1 includes men fit for general military service, and Grade 4 men unfit for any of the duties of a soldier. Grade 2 and 3 are intermediate. The actual figures obtained from a large industrial town were: Grade 1, 190; Grade 2, 270; Grade 3, 410; Grade 4, 430. The objection, however, may be raised that the present population of our towns is merely a residue left after the departure of the fit young men to active service in the earlier years of the war. After the age of 30, men tend to become degraded, that is, to pass down the grades. On turning to trades that have been exempted from military service in the earlier years of the war, the objection just made is largely removed; but the figures remain very serious. They are: Grade 1, 270; Grade 2, 152; Grade 3, 158; Grade 4, 420. Professor Keith attributes these results to slum life. Slums produce children who become men of Grades 3 and 4. Another factor is wage earning by women, who are unable to look after their children.

The Question of the Unfit

At a meeting of the National Birth-Rate Commission, Major Leonard Darwin, son of Charles Darwin, said he was inclined to think that we should be driven to some form of sterilization as the only way to deal with the question of the unfit, but that we shall require to know a great deal more before we can move along that path. We shall want to be quite sure that sterilization does not affect the character of the person sterilized, and that if it proves a failure it does not affect the health of any child that may be born. Turning to the question of the racial effects of public expenditure intended to lessen the strain on family life, the

effects to be considered are (1) the mother and the children, and (2) the future output of children. With regard to the immediate results on the family, a complex balancing of good and evil effects has to be considered. Improvements in environment cannot be relied on to promote racial progress. It is when looking to the generations of the future that questions of heredity are seen to be of great importance. Good homes contain persons on the average somewhat innately superior to the inhabitants of bad homes, and to decrease the birth rate in bad homes would make for social progress. Social reformers ought to desire to lessen the output of children from bad homes without any reference to the effects of natural inheritance. On this account, it seems that expenditure likely to increase fertility should not be made applicable to bad homes. But expenditure intended to improve hygienic conditions often also tends to promote fertility. In considering the effects of such expenditure, the malthusian arguments must not be overlooked. But help will doubtless be demanded by many reformers to better the conditions in the worst homes. All such help, whether given without breaking up the home or in institutions, is likely to increase fertility. We are, therefore, on the horns of a dilemma. We must either refuse to give assistance to those continuing to live degraded lives, or we must promote enduring racial harm. As the result of a choice between these two evils, no help should be given to homes below a certain standard of decency, suitable institutional assistance being always available for their inhabitants. Harm as well as good will always result from public assistance to selected individuals. This argument points to help being given universally and without selection. But such help would do racial and other harm, because of the heavy taxation thus necessitated and for other reasons. This system of relief should be adopted only when the benefits aimed at are otherwise unattainable. Free feeding and doles to families should be given only in genuine cases of urgent need.

Venereal Disease and Man Power

In a previous letter, the objections that have been made to the defense of the realm regulation, known as 40 D, which makes it penal for any woman having venereal disease to have intercourse with or solicit intercourse with a British soldier, were discussed. The regulation was founded on information that the spread of venereal disease in the British and colonial forces involved a serious loss of man power. Up to the end of August, seventy-eight persons have been convicted of breaches of the regulation, of whom thirty-seven pleaded guilty. The removal for a time of these centers of infection, and the deterrent effect of the regulation on others, have already resulted in a diminution of venereal disease in some army districts. The United States authorities have asked that the regulation be extended so as to apply to their troops in this country, and the governments of Canada and New Zealand have made similar regulations for the protection of their troops in the dominions. In these circumstances the government has decided that the regulation must for the present be retained. It has, however, appointed a small committee to consider what modifications, if any, should be made in its terms or in the procedure for enforcing it. The committee includes Sir Malcolm Morris, a medical woman, and a number of well known philanthropic workers.

Marriages

Asst. Surg. Hardy Vernon Hughens, Lieutenant, U. S. Navy, on duty at Great Lakes, Ill., to Miss Agatha Alethea Roemer of Waukegan, Ill., November 28.

Capt. George Flanders Wilson, M. C., U. S. Army (retired), Portland, Ore., to Mrs. Bessie M. Marshall, also of Portland, November 26.

Lieut. Charles Preston Mangum, M. C., U. S. Army, Kinston, N. C., to Miss Margaret Edwards of Chicago, November 6.

Lieut. Harold Thomas Hyman, M. C., U. S. Army, to Miss Rita Abrahams, both of New York City, November 21.

Joseph Luke DeCourcy, Cincinnati, to Miss Frances Cornelia Bickett of Chicago, November 28.

Harold Hill Walker, Kansas City, Mo., to Miss Wanda Ramsey of Omaha, November 10.

Adolph Steiner, Lima, Ohio, to Miss Gertrude Becker of Chicago, recently.

Deaths

Lieut. August Adrian Strasser ● **M. C., U. S. Army,** Arlington, N. J.; College of Physicians and Surgeons in the City of New York, 1896; aged 44; a member of the American Association of Obstetricians and Gynecologists and New York Academy of Medicine; and once president of the New Jersey Academy of Medicine; chief of the children's disease clinic, in the German Hospital, Newark; a member of the staff of the Womens and St. Michaels hospitals, Newark; who entered the Medical Reserve Corps, June 1, 1917, and was on duty at Fort Oglethorpe, Ga., where he received an honorable discharge; died at Newark, N. J., November 20, from cerebral hemorrhage.

Capt. Theodore Fletcher Mead ● **M. C., U. S. Army,** New York City; Cornell University Medical College, New York City, 1912; aged 33; who was appointed assistant visiting physician at Bellevue Hospital in January, 1917; entered the United States service in June, 1917, and sailed for France, June, 1918, and was on duty with the One Hundred and Fouth Field Artillery; died, October 30, from wounds received in action.

Died in the Service
IN FRANCE
Capt. Theodore F. Mead. M. C., U. S. Army, 1885-1918

Capt. Frank Henry Knight ● **M. C., U. S. Army,** Brooklyn; College of Physicians and Surgeons in the City of New York, 1899; aged 42; a specialist in gynecology; formerly visiting surgeon at St. John's and the Kings County hospitals, and the Episcopal Orphan Asylum and Home for the Aged; visiting gynecologist to the Swedish and Methodist Episcopal hospitals; on duty with Base Hospital No. 23 at Portsmouth, England; died from pneumonia, October 28.

Capt. Halstead Robert Wright ● **M. C., U. S. Army,** Columbus, O.; Ohio State University, Columbus, 1910; aged 43; a member of the American Academy of Ophthalmology and Oto-Laryngology; a specialist in diseases of the eye; formerly instructor in physiology and pathology of the eye in his alma mater; on duty at Base Hospital No. 14, Fort Oglethorpe, Ga., died at that place, October 17, from pneumonia following influenza.

Major Shadworth Oldham Beasley ● **M. C., U. S. Army,** San Francisco; Cooper Medical College, San Francisco, 1897; aged 42; assistant clinical professor of obstetrics and gynecology in Leland Stanford Junior University; major of volunteers during the war with Spain with service in the Philippine Islands; on duty with the American Expeditionary Forces in France; is reported to have been killed October 14.

Charles Emory Payne, Brooklyn, N. Y.; New York Homeopathic Medical College, 1903; aged 36; consulting laryngologist and rhinologist to the Jamaica and Cumberland Street hospitals, and attending physician to the home for Consumptives; laryngologist, rhinologist, and assistant oculist and aurist to the Brooklyn Nursery and Infants' Hospital; died at his home, November 18, from pneumonia.

Robert Goodwin Marriner, Menominee, Mich.; Northwestern Medical School, Chicago, 1881; aged 61; a member of the Michigan State Medical Society; attending physician and surgeon to St. Joseph's Hospital, Menominee; city health officer; who fell from a porch while making a professional call, November 12, fracturing two ribs, died at his home, November 21, from secondary pneumonia.

Jacob Rosenberg, New York City; University and Bellevue Hospital Medical College, New York City, 1914; aged 29; a member of the Medical Society of the State of New York; surgeon to Mount Sinai, Hudson Street, and Gouverneur hospitals; died at his home, November 14, from pneumonia following influenza.

William N. Yates ● Fayetteville, Ark.; Missouri Medical College, St. Louis, 1878; aged 67; health officer of Fayetteville, and a member of the Washington County Board of Health; for many years a member of the board of trustees of the University of Arkansas; died at his home, November 17, from pneumonia.

Lieut. Samuel Lewis ● **M. C., U. S. Army,** Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1917; aged 22; on duty with the Fifty-Second Field Ambulance, British Expeditionary Forces in France, is reported to have been killed in action on the Somme, August 28.

John Solomon Meltzer, New York City; University and Bellevue Hospital Medical College, 1912; aged 29; a member of the Association of American Physicians; visiting physician at Mount Sinai and Lying-In Hospitals, New York City; died at his home, November 16.

Capt. George Edward Farr ● **M. C., U. S. Army,** Shelbyville, Mo.; University Medical College of Kansas City, Mo., 1906; aged 39; on duty on the Mexican border; died in the base hospital, Brownsville, Texas, October 30, from pneumonia following influenza.

James Corbett Rathbun, Danville, Ill.; Bennett Medical College, 1909; aged 37; a member of the Illinois State Medical Society; while driving across the interurban tracks in Danville, November 13, was struck by an interurban car and instantly killed.

Thomas William Hovorka, St. Cloud, Minn.; Minneapolis College of Physicians and Surgeons, 1902; aged 44; a member of the Minnesota State Medical Association; died at his home, October 17, from pneumonia following influenza.

William B. Melick, Fort Edward, N. Y.; Albany, N. Y., Medical College, 1884; aged 60; a member of the Medical Society of the State of New York; at one time coroner of Washington County; died in New York City, November 3.

Lieut. Arthur Francis McQuaid ● **M. C., U. S. Army,** Chicago; Loyola University, Chicago, 1915; aged 28; on duty at British war hospitals in England from October, 1917, to July, 1918, and since that time serving with the British Expeditionary Forces in Flanders and France, is reported to have been killed in action, October 15.

Died in the Service
IN FRANCE
LIEUT. ARTHUR F. MCQUAID, M. C., U. S. ARMY, 1890-1918

Glenn Charles Spurgeon ● Seattle; Northwestern University Medical School, Chicago, 1904; aged 44; a member of the staff of the Eye, Ear, Nose and Throat Infirmary, Seattle; died at his home, October 29, from pneumonia following influenza.

Herman Oechsner ● New Orleans; Tulane University, New Orleans, 1899; aged 56; also a graduate in pharmacy; a member of the state board of health in 1908; died at his home, September 30, from intestinal toxemia.

Lieut. Harry Shafer Marcley ● **M. C., U. S. Army,** New York City; University of Syracuse, N. Y., 1911; aged 32; anesthetist to the Hospital for Ruptured and Crippled, New York City; on duty at Camp Eustis, Va.; died at that place, November 18.

John Calvin McClurkin, Chicago; Bellevue Hospital Medical College, 1871; aged 78; who was operated on November 14 for cataract, jumped from a window in St. Luke's Hospital, November 24, sustaining injuries from which he died shortly after.

Joseph Francis Berghoff ● Butte, Mont.; John A. Creighton Medical College, Omaha, 1913; aged 33; a member of the staff of the Montana State Hospital, Warmsprings; died in St. Ann's Hospital, Butte, November 17, from pneumonia.

Capt. Joseph E. Dudenhofer ● **M. C., U. S. Army,** Erie, Pa.; Jefferson Medical College, 1911; aged 30; on duty with the American Expeditionary Forces in France; was killed in action, September 17.

Harmon Jackson Wall, Richland Center, Wis.; Rush Medical College, 1880; aged 74; a member of the State Medical Society of Wisconsin; a veteran of the Civil War; died at the home of his daughter in Milwaukee, November 14, from pneumonia.

Lieut. Malcolm Cunningham ● **M. C., U. S. Army,** Chicago; Chicago College of Medicine and Surgery, 1917; aged 25; on duty with the 76th Spruce Squadron, Astoria, Ore.; died at his post, October 8, from pneumonia following influenza.

Died in the Service
IN FRANCE
CAPT. JOSEPH E. DUDENHOFER, M. C., U. S. ARMY, 1888-1918

Herbert Clargo Milla, Berkeley, Calif.; College of Physicians and Surgeons of San Francisco, 1901; aged 39; a member of the Medical Society of the State of California; died at his home, October 22, from pneumonia following influenza.

John Millington, Greenwich, N. Y.; University of Michigan, Ann Arbor, 1873; aged 71; a member of the Medical Society of the State of New York; at one time health officer of Washington County; died at his home, November 3.

Frank Joseph Stoll, New York City; University of Klausenburg, Hungary, 1909; aged 34; who volunteered to assist in the influenza epidemic in Pottsville, Pa.; died in that city, October 20, from pneumonia following influenza.

David Ralph Houston, Miami, Fla.; Manitoba Medical College, Winnipeg, 1909; aged 35; for several years a practitioner of Dominion City, Manitoba; died at his home, November 15, from pneumonia following influenza.

Robert Z. Ingersoll, Seymour, Ia.; Keokuk Medical College, College of Physicians and Surgeons, 1902; aged 41; a member of the Iowa State Medical Society; died at his home, October 22, from pneumonia following influenza.

Lieut. Grover Carlisle Price ● **M. C., U. S. Army,** Judson, Ind.; University of Louisville, Ky., 1909; aged 30; on duty with the American Expeditionary Forces in France; died at Toul, France, October 30, from bronchial pneumonia.

Wilson B. Shelton, Bingham, Ill.; (license, years of practice, Illinois, 1888); aged 75; a member of the Illinois State Medical Society; and a veteran of the Civil War; died at his home, November 4, from cerebral hemorrhage.

Malcolm Donald MacNab, Chicago; Rush Medical College, 1895; aged 47; at one time a member of the Illinois State Medical Society and Physicians' Club of Chicago; died at his home, November 27, from a gunshot wound.

Lieut. Timothy Gibson Sellew ● **M. C., U. S. Army,** Marietta, O.; Medical College of Ohio, Cincinnati, 1901; aged 43; on duty at Camp Grant, Rockford, Ill.; died at that place, October 20, from heart disease.

Margaret Allen Judge ● Erie, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1910; aged 39; died at Hamot Hospital, Erie, Pa., November 22, from influenza.

Edward A. Butts, Washington, D. C., Georgetown University, Washington, D. C., 1873; aged 72; for many years a pharmacist and manufacturing druggist; died in his apartments, October 22, from pneumonia.

James Stewart Doubleday ● New York City; University of Virginia, Charlottesville, 1893; aged 43; associate physician to the Southampton, L. I., Hospital; died at his home, November 14, from pneumonia.

Lieut. Clinton Virgil Reed ● **M. C., U. S. Army,** Three Forks, Mont.; Rush Medical College, 1914; aged 29; on duty with a medical unit in England; died recently from pneumonia following influenza.

Albert Garfield Porter ● Terre Haute, Ind.; Indiana University, Bloomington and Indianapolis, 1909; aged 38; police surgeon of Terre Haute; died at his home, October 29, from pneumonia following influenza.

William Madison Patterson, Egan, S. D.; University of Illinois, Chicago, 1902; aged 49; for some time editor of the local paper; died at his home, about November 13, from pneumonia following influenza.

Paul Orcutt Miller, Deer Lick, Pa.; Jefferson Medical College, 1915; aged 29; formerly of Warren, Ohio; died at the University of Colorado Hospital, Boulder, November 18, from pneumonia following influenza.

John Gustaf Swensson, Portland, Ore.; State University of Iowa, Iowa City, 1897; aged 42; a member of the Oregon State Medical Association; died at his home, November 22, from heart disease.

Lieut. Millard Cressy Clark ● **M. C., U. S. Army,** Bethlehem, N. H.; Tufts College Medical School, Boston, 1917; aged 25; died at Camp Gordon, Ga., September 29, from bronchopneumonia.

Ernest Boston, Palacios, Tex.; Barnes Medical College, St. Louis, 1899; aged 43; a member of the State Medical Association of Texas; died in Owensboro, Ky., November 10, from pneumonia.

Lieut. Alfred Johnson ● **M. C., U. S. Army,** Clyde, Kan.; St. Louis College of Physicians and Surgeons, 1907; aged 39; on duty at San Francisco; died at his home, November 6, from influenza.

John L. Poppe, Haley, N. D.; University of Christiania, Norway, 1903; aged 35; died in St. Luke's Hospital, Aberdeen, S. D., October 27, from double lobar pneumonia following influenza.

Lieut. Leslie James Phillips ● **M. C., U. S. Army,** Weyerhauser, Wis.; Queen's University, Kingston, Ont., 1912; aged 30; is reported to have died recently in France, from pneumonia.

David J. Mercer ● Poe, Ind.; Fort Wayne, Ind., College of Medicine, 1901; aged 39; died in the Lutheran Hospital, Fort Wayne, Ind., November 20, from pneumonia following influenza.

Isaac Brown Jordan, Hope, Ark.; Meharry Medical College, Nashville, Tenn., 1913; aged 32; a colored practitioner; died at his home, October 10, from pneumonia following influenza.

Claude Baxley, Baltimore; University of Maryland, Baltimore, 1860; aged 80; while crossing a street in Baltimore, October 18, was struck by an automobile and instantly killed.

Angeline Mildred Lemon Dumbleton ● Detroit; Cleveland College of Physicians and Surgeons, 1908; aged 31; died at her home, November 7, from pneumonia following influenza.

James R. Hughes, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; aged 36; died at his home, October 12, from pneumonia following influenza.

Robert S. Miles, Tacoma, Wash. (license, Minnesota, 1900); aged 77; formerly of Glencoe, Minn.; a practitioner since 1868; died at his home, November 16, from pneumonia.

Mary Powell Sook Thompson, Cleveland; Cleveland University of Medicine and Surgery, 1880; aged 70; died at her home, November 9, from carcinoma of the liver.

Lieut. Albert Frederick Ostwald ● **M. C., U. S. Army,** Buffalo, N. Y.; University of Buffalo, N. Y., 1911; aged 35; died at his home, November 8.

George P. Hemm, Hays, Kan.; St. Louis University, 1907; aged 36; died at his home, October 10, from pneumonia following influenza.

Lewis Jerome Murphy, Los Angeles; Medical College of Indiana, Indianapolis, 1903; aged 41; died at his home, recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LEONARD EAR OIL

Another Deafness Cure Humbug

"Leonard Ear Oil" is an alleged cure for deafness, sold by one A. O. Leonard of New York City. The present method of exploiting this nostrum is comparatively new. A few years ago Leonard was engaged in a mail-order business of selling his "Invisible Antiseptic Ear Drums." At that time his "Ear Oil" was an accessory to his "Ear Drum" trade, and constituted the "repeater" part of the business. More than four years ago, the Propaganda department collected Leonard's series of follow-up letters; these were of the usual medical mail-order fake type, with the accompanying testimonials, bulletins, etc. The price first asked for one of the "Invisible Antiseptic Ear Drums" was $5.00, which included, also, enough "ear oil" to last one month. Additional "ear oil" came "at $1.00 per bottle, for the personal use of those who purchase the drums." Before the follow-up series was complete, the price had been reduced to $2.50. The final letter contained an offer to send a bottle of Leonard's Ear Oil for $1.00, nothing being said about the

"Invisible Antiseptic Ear Drum." In fact, the last letter of the series would lead its recipient to infer that the "Ear Oil" was the only thing necessary to cure deafness.

Like most mail-order quacks Leonard apparently sold the original letters received from prospective victims, after they had ceased to be commercially valuable to him. At any rate a company that makes a business of buying and selling the original letters of "suckers" offered for sale, under "Deaf Letters," more than nine hundred of A. O. Leonard's vintage of 1907-08, more than five hundred of 1909-10, and more than seven hundred of 1911-12.

During the past year or two, Leonard seems to have been putting the soft pedal on the "invisible ear drum" part of his business, and playing up his "ear oil" fortissimo. Moreover, instead of selling the stuff as a mail-order proposition, Leonard now does business through drug stores. This tendency on the part of mail-order quacks to abandon the mail-order method, and conduct their business through the retail drug trade channels is an indication of the growing appreciation on the part of quacks of the protective power of the post-office fraud order. Is it also an indication of the low standard of business ethics of certain retail druggists? Leonard Ear Oil is by no means the only mail-order medical humbug that has found it safer, and doubtless more profitable, to abandon the mail-order feature and split the profits with the retail druggist.

One wonders whether the postal authorities have, during the past few years, dropped a hint to Leonard that his methods were likely to bring him into conflict with the law. This suspicion is strengthened by changes that have taken place in the character of the Leonard advertising, during the past few years. In the past we were dogmatically assured that "Leonard Ear Oil removes the mucous, opens up the tubes," etc.; now with more circumspection we are informed

that "The purpose of Leonard Ear Oil is to remove the mucous, open up the tubes," etc. In 1915 Leonard Ear Oil "restored" hearing, if one were foolish enough to believe the advertising: now "restored" has given place to "improves." A further comparison between the older and newer advertising claims will indicate the change from direct falsehood to inferential misstatement:

OLDER ADVERTISING	NEWER ADVERTISING
". . . the Leonard Glandular Oil, if applied as directed will *cure* the diseased or catarrhal condition. . . ."—[Italics in original.—Ed.]	". . . the Leonard Glandular Oil, if applied as directed will *relieve* the diseased or catarrhal condition. . . ."—[Italics ours. —Ed.]
"Rubbing this on the glands of my throat and back of my ears night and morning, thoroughly massaging it in, I have *cured* the catarrhal condition . . . ."—[Italics in original.—Ed.]	"Inserting this in my nostrils and rubbing on the glands of my throat and back of my ears night and morning, thoroughly massaging it in, I have *overcome* the catarrhal condition. . . ."—[Italics in original.—Ed.]
". . . it, together with my Invisible Ear Drums, has *cured* literally thousands of cases of Deafness and Head Noises that were considered hopeless."—[Italics ours.—Ed.]	". . . it, together with my Invisible Ear Drums, has *relieved* literally thousands of cases of Deafness and Head Noises that were considered hopeless."—[Italics ours.—Ed.]
"The imported Oil used in this preparation successfully carries the *curatives* it contains, . . . through pores of the skin to the diseased parts and effects a *cure*."—[Italics ours.—Ed.]	". . . the Imported Oils used in this preparation successfully carry the *remedies* it contains to the diseased parts and *remove the cause* of Deafness and Head Noises."—[Italics ours.—Ed.]

Some months age the Department of Health of the City of New York purchased specimens of Leonard Ear Oil and analyzed it. The chemist reported in effect, that the stuff had essentially the following composition:

Liquid petrolatum	41.96 per cent.
Ammonium oleate (soft soap)	8.18 per cent.
Oleic acid	14.40 per cent.
Camphor	9.85 per cent.
Eucalyptol	11.07 per cent.
Alcohol	12.00 per cent.
Water	2.54 per cent.

This would mean that Leonard Ear Oil is to all intents and purposes liquid petrolatum with camphor, eucalyptol, etc., emulsified by aid of a soft soap produced from ammonia and oleic acid. Having determined the composition of Leonard Ear Oil, the Department of Health of the City of New York lodged a complaint against Leonard, who was arrested and arraigned before the Court of Special Sessions, and adjudged guilty of making false and misleading claims. On July 14, 1918, Leonard was sentenced to thirty days in jail or to pay a fine of $250.00. Of course he didn't go to jail.

The Health Department of New York City went still further in protecting the public against this humbug. It notified all druggists in New York City that "the continued sale of Leonard Ear Oil with these false and fraudulent statements attached, will constitute a violation of Section 116 of the Sanitary Code, and will subject the druggist so doing to prosecution." Moreover, the Bureau of Public Health Education of the New York Department of Health gave the facts publicity through its *Weekly Bulletin* and its *Monthly Drug Bulletin*, and prepared an exhibit which was placed in a window on a prominent street, exposing the Leonard fakery. The exhibit consisted of two placards used by the Leonard Ear Oil concern, with a bottle of the oil itself. Alongside the original bottle were placed two other bottles, one with material which the chemist's analysis showed the bottle to contain, and another showing a bottle of the same size containing water. Under these bottles appeared the following legends:

Bottle No. 1—"Leonard's Ear Oil. This preparation costs you $1.00. The Courts of this City have declared that the claims made as to the medicinal value of the preparation are false and misleading."

Bottle No. 2—"This preparation is, analytically, the same as 'Leonard's Ear Oil' and may be purchased at an ordinary drug store for about 20 cents."

Bottle No. 3—"This bottle contains water and is just as good as 'Leonard's Ear Oil' for deafness. The cost to you is only the price of the bottle."

This was last summer. Since that time another city—Cleveland, Ohio, which makes an effective attempt to protect its citizens from fraud in medicine—has taken action on the Leonard Ear Oil. Under date of November 4, the Commissioner of Health of the City of Cleveland issued an order to Cleveland dealers relative to the sale of the Leonard preparation. This order read as follows:

"Informing retail dealers that Leonard Ear Oil has been examined by this department and found to be a misbranded product within the meaning of the laws applying to Cleveland in that the claims made for this product are false and fraudulent, and its sale is therefore contrary to the best interests of the public health of this city.

"Dealers in Cleveland are hereby notified to discontinue the sale or offering for sale of Leonard Ear Oil."

As Leonard has ceased selling his stuff on the mail-order plan, he is no longer amenable to prosecution by the post-office authorities. As he doubtless is careful to avoid making false and fraudulent claims for his product on the *trade package*, he can not be prosecuted under the Federal Food and Drugs Act. There is nothing, however, to prevent him making all the misleading claims he wishes to, regarding his nostrum, if he confines these claims to circular matter or window displays distributed through drug stores, and newspaper advertisements. That is, there is nothing to prevent this, unless city or state health authorities follow the lead of New York City and Cleveland. Will they do it?

Correspondence

"A REGISTRATION FEE FOR PHYSICIANS"

To the Editor:—In THE JOURNAL, Nov. 16, 1918, p. 1629, is an article by Francis W. Shepardson entitled "A Registration Fee for Physicians." About the time I finished reading the article the mail brought me a letter from the author asking the names of three physicians of our county (Christian) to whom he might write and at the same time asking me to express my opinion of the measure. As it is a matter of interest and importance to the physicians of the state I am offering my comments through THE JOURNAL in the hope that others may be interested and, perhaps, express their approval or objections to the proposed measure.

Mr. Shepardson admits, by implication, that he is biased in his views and proceeds to point out the shortcomings of the medical profession in Illinois. He says that we have a very poorly organized profession; but aside from the one point of numbers he does not say in what manner we are lacking. Were he to investigate, he would probably find that in our state we are as well organized, both in the state and county organizations, as physicians are in other states.

He next points with pride to a formidable array of quacks and charlatans, who he seems to think are fostered by the medical profession of this state, regardless of the fact that through our state society we have begged the legislature from year to year for laws ridding the public of these various pretenders and as often have been turned down and the people of the state left to the impositions of the whole band. Why should he blame the medical profession for the existence of all these fake doctors when it is the laymen—the boasted "neutrals"—who through their representatives have passed the laws permitting them to exist and that, too, against the bitter protest of the medical profession?

He mentions the abortionist and other evil doers in our midst, but also points out that the prosecuting attorneys (neutrals, also?) have either refused to take up the cases or managed in some way to sidetrack them. He says that some of these cases failed because physicians were unwilling "to give testimony or to encourage deluded victims to give the department the legal use of the information given them in the quiet hours of confession," but he does not even suggest why these physicians refused to commit themselves.

When the state and the people sanction and legalize all these frauds, is it incumbent on the physician to injure himself when he knows he would only be censured for meddling?

Mr. Shepardson says there are more fakers and charlatans in medicine than in all the other professions and trades combined. This is probably true; and they flourish because the legislature, which represents the public, has persistently refused to give us laws to suppress them, and because the paid officials of the state are unwilling to perform their plain duty to the public, as Mr. Shepardson himself points out.

I might suggest right here that it is not by the sanction of the medical society of the state or any of its component societies that these evils exist any more than it is that nearly every newspaper carries advertisements of the most glaring frauds of "cancer cures," "consumption cures," "dissolving cataracts," etc. These advertisements are carried under state and national laws despite the most strenuous protests of the medical profession, although Mr. Shepardson, by implication at least, seems to think we are to blame for it.

In his comments on medical education I have no criticism, and the medical profession in general is pleased with the advanced standard of our medical courses. But this was not brought about by "neutral regulators" but by the advanced ideas of the physicians who constitute our medical societies.

Under the heading "Regulation of Practitioners," he points to nine different items under which revocation of license may be secured, but does not say how the proposed "regulation" of physicians is to secure such penalties or even the prosecutions for the offenses. There is no indication that the laws would be changed or that more direct evidence would be produced thereby for the prosecution of such cases, or that the prosecuting attorneys would change their habits in putting off these cases, as mentioned above. The quack who goes from town to town advertising to be a "specialist" on every disease to which human flesh is heir would be as free from prosecution as he now is; and if there are to be prosecutions at all, they will have to be made in the same manner as they now are, to wit: The physicians or others must lay in the complaint and furnish the evidence.

Mr. Shepardson points out that since the first registration law of 1877 went into effect there have been 29,936 individuals licensed, and adds, "How many of these licenses are active at the present time nobody knows." This is, no doubt, true; but would this annual registration correct the matter? Many have died, some moved to other states, some retired, and a *few* had their licenses revoked. Some may be practicing under fraudulent registration and, if so, all they have to do is to send in their fee and get a renewal card which they may hang in their offices and point to with assumed pride when their patrons come in, and thus continue their illegal practice as before. Why, therefore, resort to the proposed annual registration when we have a much better, more economical and easier method of finding and reporting these impostors? By sending the lists of physicians as already recorded to the secretaries of the various counties the lists may be verified or corrected as may be, and a far more correct list obtained than by annual registration.

Those secretaries who have served a year or two, and most of them serve long terms, know more of the physicians in any particular county than any registration would find out in ten years, and at no expense at all unless it be a mere matter of postage. Secretaries are always ready to correct these lists, and usually know every physician in their county.

It is true, no doubt, that the lists in the directory of the American Medical Association are not always perfect, and the same may be said of the one from the state board of health; but they are probably fully as correct as the one under the proposed registration would be, and with equal care in compiling and cooperating with the county secretaries would be more so with the added opportunity of corralling those who registered illegally, as, for instance, when they are registered on a diploma or examination not their own; for when the board of censors of the county society recommends a man for membership in a county society, they inquire very carefully into his standing, his graduation, etc., and have a much better opportunity to do so than that afforded by simply the payment of a registration fee.

In the fourth item of "advantages" it is claimed that the state would have better control over unethical practitioners; but a registration does not give us a law to punish the offenders. It is easy enough to find the unethical and fraudulent practitioner. What we want and need is the means of getting rid of him, and there is nothing even suggested in Mr. Shepardson's article whereby this may be accomplished any better by registration than under present conditions.

As regards the fee of two dollars, that is not much; and if there were a prospect of getting results there is not a reputable physician in the state who would not gladly pay it and be the gainer thereby; but for the reasons given, it seems to me to be an entirely useless cumbrance of the law and an annoyance to the members of the profession. Nor am I alone in this view. While writing these pages I took a little time off to inquire what benefits were gained by those who were already "regulated." I made the rounds of the undertakers, the barbers, the dentists, the jewelers and the plumbers; and of all these only three persons thought there was any benefit at all and the rest promptly and emphatically said "no," and usually added that the only ones benefited by the annual registration were those who got the jobs of keeping the records and collecting the fees. One barber, only, thought there might be some benefit by limiting his profession against itinerants; but he could not mention a single instance to support his belief. One dentist thought there might be some benefit, gave the same reason the barber did, and cited one instance in which a dentist was excluded from practice in the state; but later in the evening he met me on his way home and said that the exclusion was due to the fact that he was not registered at all in the state and not that the annual registration had kept him out. I saw one plumber and he thought there "might" be some benefit in the registration, but could not mention any instance in which the benefit had actually been observed.

It is my firm belief that if we could only get the laws, and honest, efficient officials to execute them, there would be no need of any regulation by laymen, no matter how "neutral" they may be.

D. D. Barr, M.D., Taylorville, Ill.

EPIDEMIC INFLUENZA IN PRIVATE PRACTICE

To the Editor:—The pandemic reached Hartford about the middle of September, reached its greatest pace about September 28, and from then on raged fiercely until October 21, when it began to recede. The number of deaths was 586 resident and 137 from out of town. The population is estimated at 145,000, thus giving a death rate of 4 per thousand. The number of influenza cases was about 23,000.

The schools and theaters were not closed here, and from the manner in which the epidemic spread they apparently were not an important factor in disseminating the disease. The epidemic raged most intensely in the crowded tenement districts. Proportionately, the Jews were hit harder probably than any other group of peoples. They were affected first and in great numbers. The northeast section, populated by Jews, Russians and Italians for the most part, was in the grip of the epidemic for a week before it spread to the east side (adjacent), populated mainly by Italians and Russians. In the latter days of the epidemic the south end of the city had more cases than the other sections. The hospitals were overcrowded and able to admit only a small portion of the patients needing admission. An emergency hospital was opened about October 15. It did good work, but was really too late to do the most good.

The subjoined observations were made from approximately 500 cases seen in private practice. As elsewhere, the fatalities were chiefly among the 20 to 35 age group. Similarly the prognosis was better for those over 40. Elderly patients were rare. It was a question whether it was more frequent for a child or an adult to bring the disease into the family.

Epistaxis was common, occurring in from 10 to 15 per cent. of the cases. Some of these resulted in pneumonia. The headache and backache frequently persisted for three or four days. The temperature on the first day was between 101 and 104. A feature of the temperature was its variability during the day, rising and falling at irregular intervals. In the ordinary case the temperature persisted for from two to five days. Sweating was common even without medication or hot drinks. The bowels were inclined to be constipated. There was a general but slight enlargement of the lymph nodes. The spleen was not palpable. The pulse was relatively slow in many cases, but was not always so.

In regard to treatment, no particular drug had special virtues. Rest in bed, fresh air, light, nourishing food, plenty of water and open bowels were the main reliances. A simple expectorant cough mixture, sometimes with the addition of codein, sufficed for internal medication in the ordinary case. Alcohol rubs were soothing when the temperature was high. For the heaviness and soreness in the chest, home-made mustard plasters undoubtedly gave relief. The "fever and pain" powders or capsules, as were ordinarily prescribed, frequently only increased the prostration, and in a few cases in which the patient had taken a number of them, it seemed to prolong their convalescence. This type of medication was frequently more harmful for the patient than the pain for which it was intended.

In the pneumonias, stimulation did not seem to stimulate. It was rare to find pneumonia develop in a patient who took to bed at the onset of his influenza, and have it set in before convalescence, but it did occur. Pneumonia usually occurred after too early getting out of bed, or from too strenuous efforts after or during convalescence.

Three cases of the meningeal type of influenza were encountered. Prompt spinal puncture with withdrawal of excess fluid which was under pressure gave immediate relief. These cases were recognized by unconsciousness chiefly, with variable rigidity of neck, convulsions, involuntaries, dilatation of pupils and vomiting. In one of these cases, in which spinal puncture was delayed, recovery was slower than in the other two.

HARRY BERMAN, M.D., Hartford, Conn.

PREVENTION OF INFLUENZA BY OSMOTIC ACTION IN AIR PASSAGES

To the Editor:—The infection of influenza unquestionably enters the system through the nasal spaces and upper air passages. This fact is practically proved by a mode of disinfection and cleansing of those spaces and surfaces which I have suggested and used in the case of many thousand individuals who would ordinarily be considered likely subjects to infection. Infection was prevented in practically 100 per cent. when the treatment was properly used.

The tortuosities of the nasal and postnasal spaces and their great extent make the use of the many remedies suggested ineffective, because, however excellent they may be in themselves, they do not reach all the surfaces involved and they furthermore lack certain physical qualities necessary to invite a sufficient and strong osmotic action.

A powder composed of impalpable boric acid, 95 parts, sodium bicarbonate, 3 parts, and calomel, 2 parts, thoroughly triturated, is the basis of treatment.

With a good powder blower, this powder is freely blown into the nose, and will reach every recess in the upper air passages, and does not seem irritating to any extent. This powder, by abstraction of liquids from the moist surfaces, dissolves, excepting the calomel, and will shortly cause a mucoserous flow induced by osmotic pressure, and during this process the membranes involved are thoroughly washed and disinfected by virtue of the double osmotic current induced. This mucoid secretion can then be discharged, and the process repeated after from four to six hours. Ordinarily, the use of this powder once a day will suffice to keep the nasal membranes in fine condition and free from infections.

JAMES A. BACH, M.D., Milwaukee.

THE CIVILIAN PHYSICIAN'S SACRIFICE

To the Editor:—May I ask why as my husband was a victim on the long list of doctors who succumbed to the terrible epidemic last month no mention is made in any periodical or public newspaper of these noble fellows who gave their lives in fighting this disease? Are they not to be mentioned in any way as heroes?

The sacrifices of physicians in this section of our country was greater than the people of closely populated districts during the past four years of war can conceive, as the distance they must cover is great, and doctors are few. My husband for the past year has practiced alone in this county his nearest town being 28 miles away, the farthest, 75 miles. He could not enter the Army on account of being tuberculous. When he died he had worked night and day for two weeks *alone* trying to save people in this county.

Another tuberculous doctor from an adjacent county came over and took up the fight, leaving a little doctor in his place who left a tuberculosis sanatorium in El Paso, to aid the people. I am sure similar cases could be brought to mind over our country. Is there no memorial for these gallant men?

MRS. LONGINO, Fort Sfockton, Texas.

THREE SIGNS OF SOME VALUE IN THE DIAGNOSIS OF UNUSUAL CASES OF INFLUENZA

To the Editor:—The last epidemic of influenza has been confined almost entirely to inflammatory changes in the respiratory tract. While it is true that there have been occasional instances in which the whole brunt of the disease has been borne by other systems, these could be diagnosticated only by inference as (1) the presence of the epidemic; (2) attacks of well-marked respiratory influenza in other members of the same family, or (3) previous similar attacks, unquestionably of influenzal nature in the same individual. Even here, in many instances, on close questioning, it could be ascertained that there was an occasional sneeze four or five days before the onset of the disease.

In these out-of-the-ordinary attacks, the nervous system was the one commonly involved. However, 95 per cent. of the cases seen in this epidemic involved the respiratory system, and the diagnosis was almost always made within two or three minutes after seeing the patient. Now and again in an isolated case of this type the question was raised in the mind of the practitioner "whether or not one was dealing with an influenza or with an ordinary head cold or coryza," such as is not uncommon at this time of the year. The absence of early rise of temperature and pulse and respiration changes in some of the influenza cases made this often a puzzling problem. Most physicians "played safe" and diagnosticated all of such cases as influenza. This was eminently fit and proper.

1. In a large number of true cases of influenza of the respiratory tract I have noticed a sign that may at times be of some help from a diagnostic standpoint. It has not to my knowledge been described before. It consists of a very marked redness of the opening of the salivary or Steno's duct, just opposite the second molar tooth. The punctum is usually swollen and raised above the level of the cheek, and the red spot is seen in the center. Mere swelling of the punctum has no diagnostic import. It may easily be inspected by placing a spoon handle in the side of the mouth and retracting it. If the sign is present on one side it is almost always visible on the other as well. It is not invariably present, but can be seen in at least 70 per cent. of the cases.

It has been present in most of the sporadic cases, and here is of very considerable value.

2. The presence of fine crackles at both bases of the lungs posteriorly near the vertebrae is prima facie evidence of influenza in a case in which there is a history of an acute onset. In old persons who have been lying down for some time, in cardiacs with broken compensation and in cachexia of any kind, this criterion is valueless, because such râles are commonly present without influenza.

3. After the disease has spent itself, frequently a harassing cough persists. This cough resembles whooping cough more than anything else. On listening to one such paroxysm without a history, it is almost impossible to make a diagnosis from early whooping cough. On inspection, however, one will in these cases find a redness over the arches of the palate. This is from ½ to ¾ inch in width; sometimes it extends only half way up on the sides and at other times it makes a complete arch. It is seldom or never missing in this type of cough due to influenza.

Incidentally, by touching the pillars and the nasopharynx with a silver nitrate solution, more good will be done than by the ingestion of many pints of cough mixture.

THOMAS F. REILLY, M.D., New York.

GOVERNMENT RESPONSIBILITY TO THE STUDENT

To the Editor:—The government has taken over the military control of the medical schools, enlisted the students, and has agreed to pay their tuition fee, their board, and $30 a month. I understand that now that peace is in view the government is going to give this up, which is all right, but the students expect to have this year's teachings under the above terms, and now are not prepared to suddenly pay the expense for the balance of the term. So it seems to me that the government, even if it gives up the military control of all schools ought to carry out at least the financial agreement with the students until the end of the year. Not to do this would be a great injustice to some of the poorer students.

J. H. CARSTENS, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STATUS OF RESERVE OFFICERS IN DEMOBILIZATION

To the Editor:—Please inform me as to the exact status of the Medical Reserve Corps with reference to the Army. Was the Medical Reserve Corps abolished? Was there a Medical Reserve on Nov. 1, 1918, of any kind? Is there a Medical Reserve Corps for doctors and students separately?

C. R. KESSEL, Morgantown, W. Va.

ANSWER.—As stated elsewhere in this issue, in the demobilization of officers of the Army those whose services are no longer needed will be given an honorable discharge. Such discharges will be a complete separation from the service. Opportunity will then be given to them to express their desire to reenter the Officers' Reserve Corps, Medical Section. Other officers who are qualified may enter the regular Army. The granting of new commissions will be dependent on individual fitness, eligibility and number of vacancies as provided by existing or future legislation. Although all of the officers of the Reserve Corps were originally commissioned for five years, commissioning for the period of the emergency was, it is reported, made by G. O. No. 73 which terminated the five year provision. This made all men officers of the Medical Corps. It has been reported that legislation will be presented to Congress for the reorganization of the Army whereby suitable arrangements may be made for commissioning in the regular Army and in the Officers' Reserve Corps men who have served in the present war. Under the National Defense Act of 1916 there was both an Officers' Reserve Corps and an Enlisted Reserve Corps so that medical students were made eligible for the Enlisted Medical Reserve Corps.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1805 Franklin St., Tampa.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct. 8-10, 1918. The examination covered 16 subjects and included 80 questions. An average of 70 per cent. was required to pass. Of the 7 candidates examined, 6 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University (1918) 79.2, 85.6, 88.4.		
George Washington University	(1918)	90
Howard University	(1918)	80.6
University of Maryland	(1917)	82.5
FAILED		
University of Nashville	(1893)	16
College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1914)	Maine
Bowdoin Medical College	(1916)	Maine

Illinois June Examination

Mr. F. C. Dodds, superintendent of registration, Department of Registration and Education, reports the practical and written examination held at Chicago, June 3-6, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 232 candidates examined, 203 passed and 28 failed. One candidate did not complete the examination. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Howard University	(1918)	1
Chicago Coll. of Med. and Surg.	(1915) (1917, 2); (1918, 68)	71
Hahnemann Med. Coll. and Hosp. of Chicago	(1918)	14
Loyola University	(1916, 2) (1917, 2)	4
Northwestern University	(1918)	12
Rush Medical College	(1918)	37*
University of Illinois	(1918)	20
Washington University	(1918)	1
University and Bellevue Hosp. Med. Coll.	(1916)	1
Queen's University	(1917)	1
University of Kharkov	(1914)	1

FAILED				
Chicago Hospital College of Medicine				(1915) 2
Chicago College of Med. and Surg.			(1917, 5)	(1918, 7) 12
Jenner Medical College		(1910)	(1911)	(1917) 3
Loyola University			(1916)	(1917) 2
Northwestern University				(1918) 1
Rush Medical College				(1918) 1*
Boston University				(1911) 1
University Medical College of K. C.				(1900) 1
Mcharry Medical College (1912)		(1913)	(1915)	(1916) (1917) 5

*Degrees for 32 of these candidates were withheld, pending completion of hospital internship.

Book Notices

COMMOTIONS ET EMOTIONS DE GUERRE. Par André Léri, Professor agrégé à la Faculté de Paris. Préface du Professeur Pierre Marie. Paper. Price, 4 francs. Pp. 196, with illustrations. Paris: Masson et Cie, 1918.

When the war began, the French had a great advantage. They knew more of nervous diseases than any other nation and they had a greater number of trained observers in this department. Consequently, they more quickly sized up the situation and more promptly had a fairly adequate organization to handle nervously sick soldiers. Naturally they have gone farther than the rest and are in a position to teach. This is exemplified in the present small book, which is limited to what the author calls the *commotionné*, the *contusionné* and the *emotionné*. We may say that he treats of patients suffering from concussion and contusion of the central nervous system and the war neuroses. He has the great advantage of having served at the front, in the immediate rear and in a neuropsychiatric center of the interior. Each of the three classes of cases by no means presents the same clinical picture at the three different stations, and the author gives us the benefit of his unusual experience by considering each class of trouble (*a*) on the battlefield and at the first aid station; (*b*) at the evacuation hospital (à l'ambulance), and (*c*) at the base hospital or convalescent center. The descriptions are remarkably clear, and the illustrative cases cited are illuminating. It cannot be said that all of the opinions expressed are shared by the author's colleagues; but the book is fairly representative of French war neurology, which is the best that there is. It is condensed, is a small mine of information, and should be in the hands of every reader of French who is interested in what war (and other things) can do to the nervous system.

THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE MOUTH. Being the Second Edition of the Histology and Patho-Histology of the Teeth and Associated Parts. By Arthur Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S., Professor of Dental Histology, Pathology and Comparative Odontology, University of Pennsylvania. Volume I—Normal Histology. Cloth. Price $4.50 net. Pp. 345, with 264 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

This volume is divided into three parts. The first contains chapters on Nasmyth's membrane, the enamel, the dentin, the cementum, structural modifications of the tissues, the dental pulp and the alveolodental periosteum. The second part deals with the oral cavity and its accessories, including the lips, cheek and tongue, glands, palate and tonsils; the maxillary and mandibular bones, and a group of minor structures, including the absorbent organ, the dental capsule, the gum and the mucous membrane of the maxillary sinus. The third part is devoted to the development of the teeth in mammals, fishes, reptiles and batrachians. The appendix has a note on the functions of the cells of the dental pulp and on the absorption of the alveolar process. The work is encylopedic in character, giving the views of many investigators on each subject. This makes it of value to those who are able to analyze the material for themselves but is apt to confuse the average student. The work is strongly colored by the author's views, especially concerning Nasmyth's membrane, the cementum and the dental pulp. The author's statements in regard to the lymphatic vessels seem hardly justified in view of the work of Schytzer, and the more recent confirmation of his work in this country. The volume is well illustrated.

Medicolegal

Privileged Communications—Admissibility of Evidence

(Dodd v. State (Texas), 201 S. W. R. 1014)

The Court of Criminal Appeals of Texas, in affirming a judgment of conviction of defendant Dodd of rape in this case, wherein the death penalty was assessed, says that the defendant set up insanity as a defense. A physician, an expert on insanity, who appeared to have been present at the trial as a witness, was called by the state in rebuttal, and objected to testifying because he had been employed by the defendant to make an examination of him with reference to his sanity, and that he desired to be exempt from the necessity of giving his opinion on account of the confidential relationship existing between him, a physician, and the defendant, his patient. The court, without objection from the defendant, excused the witness, and at the end of the trial the defendant requested the court to instruct the jury to disregard the incident just related. The defendant presented no authority sustaining the contention that there was error thus disclosed, and this court has found none. The physician was a witness, and the state's counsel appeared to have been within his rights to call him to testify, and so far as this court was advised, to require him to testify, so far as the inhibition of privileged communications touched the subject. The general rule is that communications between physician and patient in the absence of statute are not privileged. The courts recognize that there are many reasons for regarding the communications between physician and patient as privileged when the patient seeks the physician for medical aid, and in many states statutes have been enacted on the subject. It has been held, however, that when the consultation is not for medical aid, these reasons do not obtain. Whatever the rule, there is no statute in this state exempting such communications

When insanity is an issue, it is competent for the state to call witnesses to prove the conversations and conduct of an accused, not admitting guilt, while in jail as a basis for an opinion as to the sanity or insanity.

If evidence that the hymen of the prosecutrix had been previously ruptured by an operation was material and admissible, the proof of it should have been made by direct inquiry of her as to the fact. Her statement to a physician would have been hearsay, not competent to prove the fact, but available only to impeach the prosecuting witness if on inquiry of her she had denied the fact that the operation had taken place.

Test of a Hospital as a Public Charity and Why Exempted from Taxation

(Lutheran Hospital Association of South Dakota v. Baker, County Treasurer (S. D.), 167 N. W. R. 148)

The Supreme Court of South Dakota, in reversing a judgment that was rendered in favor of the defendant in this action to recover certain taxes levied against the property of the plaintiff and paid under protest, holds that the plaintiff was a corporation or society organized and conducted exclusively for charitable purposes, and that its property was being used exclusively for such purpose and was exempt from taxation, under the state statute providing that all property belonging to any charitable society or used exclusively for charitable purposes shall be exempt from taxation. The court says that the criterion in this class of cases seems to be that whatever is done or given gratuitously in the relief of public burdens or for the advancement of the public good is a public charity, and an institution founded as a purely public charity does not lose its character as such under the tax laws if it receives a revenue from the recipients of its bounty sufficient to keep it in operation; or, applying another test, if the object for which an institution is founded is the general public good, and not private gain, and it is so conducted that the public receives all the benefits of it, it is purely a public charity. Indefiniteness of beneficiaries is one of the characteristics of a charitable use. A public

charity may be open to all mankind, or the officers, thereof may be empowered to select beneficiaries from designated classes of humanity. The fact that the plaintiff had a department for training nurses was not in conflict with its charitable purpose. It was just as necessary to have trained nurses as any other appliance. Common observation would say that one of the most efficient methods for procuring trained nurses would be to do your own training, so that no private profit resulted therefrom. So training, and having on hand at all times when needed, well-trained nurses, would improve the facilities of the institution for caring for the sick. The existence in a community of such an institution which admits, cares for, and gives medical aid to the pauper as well as the prince, without private gain to itself, is a public charity in the fullest sense. Very fortunate, indeed, is the community which has situated in its midst such an institution, organized and conducted as the one in question. It relieves the public from maintaining by taxation such an institution of its own. This is the basic reason for the exemption from taxation of the property of such institutions, when it is used exclusively for the purposes of charity.

Time from and for Which After Injury Medical Services May Be Compensated

(Cooke v. Holland Furnace Co. et al. (Mich.), 166 N. W. R. 1013. McMullen v. Gavette Construction Co. et al. (Mich.), 166 N. W. R. 1019)

The Supreme Court of Michigan says, in the first case, in which it reverses and vacates an award of the industrial accident board for compensation and for medical services rendered nearly a year after the date of the injury of the employee, that it was confronted for the first time with the question of whether the statute begins to run from the date of disability (or ascertainment and definite satisfaction that disability exists), or from the date of the accident, in the provisions of the employers' liability law that during the first three weeks after the injury the employer shall furnish, or cause to be furnished, reasonable medical and hospital services and medicines when they are needed, as to the time after the injury within which notice shall be given to the employer, and that within which claim for compensation shall be made. The court comes to the conclusion that it is compelled to hold, must hold, unless it resorts to judicial legislation, that the legislature by the two sections containing these provisions fixed the date of the injury at the date of the accident, and not some remote date thereafter, when the injured employee became definitely satisfied that he was disabled as a result of the accident.

In other words, as stated in the second case, decided on the same day as the first and wherein an award is also vacated, the court says that it held in the first case that the date of the accident fixed the date of the injury, under the workmen's compensation act, and that the industrial accident board was not authorized by the act to award and compensate the employee for medical and hospital services performed more than three weeks after the accident. The authority for such allowance by the board does not exist, except per force of the statute, and the legislative judgment has limited the allowance to such services as are performed during the first three weeks after the injury. Nor has the board authority to award as damages the amount paid for such services performed at a later date, on the theory, ingeniously advanced, that the failure to furnish proper medical and hospital services created a liability for the payment of such services so performed, which may be awarded by the board as damages.

Society Proceedings

COMING MEETINGS

American Physiological Society, Baltimore, Dec. 30-Jan. 1.
American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Surgical Association, Chicago, Dec. 20-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

November, 1918, 47, No. 2

1 Quantitative Studies on Intracellular Respiration. E. J. Lund, Minneapolis.—p. 167.
2 *Effect of Epinephrin on Fatigue Produced by Injection of Fatigue Products, Lactic Acid and Acid Potassium Phosphate. C. M. Gruber and O. S. Kretschmer.—p. 178.
3 *Antagonistic Action of Epinephrin to Fatigue Produced by Perfusion of Acid Sodium Phosphate. C. M. Gruber.—p. 185.
4 Influence of Alkali Administration on Urinary Excretion of Lactic Acid; Significance of Latter in Maintaining Neutrality in Body. J. J. R. Macleod and H. J. Knapp, Cleveland.—p. 189.
5 *Variations in Flexion and Crossed-Extension Thresholds in Experimental Traumatic Shock, with Coincident Blood Pressure Changes. E. L. Porter, Philadelphia.—p. 208.
6 Viscosity of Urine. R. Burton-Opitz and R. Dinegar, New York.—p. 220.
7 *Experimental Surgical Shock. F. C. Mann, Rochester, Minn.—p. 231.
8 Photochemical Effect of Certain Fluorescent Substances on Rennin. J. H. Clark, Baltimore.—p. 251.
9 Nature of Sensory Stimulation by Salts. M. Irwin.—p. 265.
10 *Secretory Pressure of Liver with Special Reference to Presence or Absence of Gallbladder. F. C. Mann and J. P. Foster, Rochester, Minn.—p. 278.

2. Effect of Epinephrin on Fatigue Produced by Injection of Fatigue Products.—In this research the authors endeavored to determine whether epinephrin, which possesses the ability to increase the height of contraction and increase the decreased threshold irritability of a fatigued muscle, would counteract the fatigue produced by perfusing moderately strong solutions of fatigue substances through the muscle. It was found that epinephrin (0.5 to 1 c.c. of a 1:1,000 solution) counteracts the induced fatigue produced by the perfusion of fatigue substances such as sarcolactic acid, lactic acid and acid potassium phosphate through the muscle in identically the same way as it does the fatigue produced normally in active muscles. Epinephrin in some cases has no bettering effect. In these muscles it also has no ability to produce vasoconstriction.

3. Effect of Epinephrin on Fatigue Produced by Perfusion of Acid Sodium Phosphate.—Gruber found that epinephrin counteracts the fatigue produced by the perfusion of acid sodium phosphate as tested by the changes in the height of muscular contraction. In all cases in which a marked recovery was obtained, epinephrin caused an almost complete cessation of the passage of the perfusion fluid through the muscle.

5. Nervous Reflexes in Experimental Traumatic Shock.—The outstanding features in the results of Porter's investigation are as follows: Manipulation of the intestines in the spinal cat (a cat deprived of its brain) resulted in raising the threshold of the crossed extension reflex in all cases, and of the flexion reflex in roughly 50 per cent. of the experimental animals. Increase in threshold may be evident less than a minute after manipulation has commenced. Recovery may be complete or incomplete, prompt or delayed. It is more likely to be prompt and complete in the case of flexion than of crossed extension. The flexion reflex is never completely lost as a result of the manipulation, crossed extension often is lost. A case is described in which this did not occur until some minutes after the manipulation had ceased. The changes in reflex threshold are not dependent on a decrease in blood pressure; on the contrary, the blood pressure rises momentarily as manipulation starts, and this may coincide with the rise in reflex threshold. After the momentary rise, the blood pressure decreases steadily as the experiment proceeds, and the original reflex threshold may be recovered under a lower blood pressure than existed before the manipulation. The suggestion is made by Porter that if pain in the conscious animal could be measured during intestinal manipulation, it is probable that its threshold would show alterations roughly paralleling those of the reflex thresholds described in this paper.

7. **Experimental Surgical Shock.**—All of Mann's experiments were performed under ether anesthesia. By the manipulations of the various tensions of ether it is possible to parallel the various stages and signs of shock. Under high tensions the blood pressure is decreased and all the other symptoms follow. However, it is quite possible to saturate an animal with ether at a tension just slightly lower than that necessary to abolish the eye reflex and to produce an obtundity of the reflexes without decreasing the blood pressure to a shock level. It is possible to obtain such results with a certainty only when the ether is administered mechanically and is not dependent in any way on the respiratory efforts of the animal. In a study of the vascular and respiratory reflexes under various tensions of ether it was found that all the respiratory reflexes, except that which produces inhibition of respiratory movements, disappeared before the respiratory center failed. The excitatory respiratory reflexes disappear under a relatively high tenson of ether. On the contrary, instead of a depression of the inhibitory reflex being caused by ether, a relative increase, at least, is quite common. Thus it was possible under deep etherization, in some instances, actually to kill an animal by prolonged stimulation of the nerve fibers that inhibit respiration.

It was believed that this phenomenon might have some bearing on the shock problem; a more complete study of it was therefore made, and the following suggestive facts were obtained: The inhibitory reflex of respiration is decreased or completely abolished during periods of hyperpnea; the period of apnea following hyperpnea under light ether anesthesia is not increased by the stimulation of the nerves which inhibit respiration, and the inhibitory reflex is decreased or abolished during the period of increased respiratory movements in the first stage of asphyxia. An animal cannot be killed by reflex inhibition of respiration during the first stage of asphyxia. However, as asphyxia is prolonged and the respiratory movements begin to decrease, stimulation of inhibitory nerves will inhibit respiration and in many experiments produce sudden death.

In some experiments, while the time during which respiration is inhibited under deep ether is greatly increased over that under light ether, death cannot be produced. A slight period of asphyxia will increase the time of inhibition so that death will occur. It would seem that the lack of oxygen may be a factor. Inhibition of respiration under deep etherization frequently produces death very quickly. The blood pressure usually decreases at once and the heart soon stops beating. This result would seem to imply that death was due to or associated with other factors than asphyxia. However, a comparison of the curves in instances in which death was due to asphyxia under deep ether shows a close similarity to those found in the condition produced experimentally. The asphyxia under deep ether seems to explain the sudden decrease in blood pressure and stoppage of the heart, although an active process may be involved. Under light surgical anesthesia respiration is seldom inhibited for a very long time.

In a few experiments stimulation of the superior laryngeal nerves under an ether tension, slightly too low for surgical work, has produced a partial inhibition of respiration for as long as four to eight minutes. This period of inhibition is longer than that which produced death in several of the experiments under deep ether. Under the very low ether tension, however, blood pressure remained practically normal and death did not occur.

These results would furnish some support to the idea that the sudden death following inhibition of respiration under a high ether tension was mainly owing to a failure of the organism to compensate for the asphyxiation when saturated with a high ether tension. Ligation of all the structures to the limbs of a dog except the major artery, will usually produce all the signs of shock. The relative amount of tissues involved by these ligatures was on an average approximately 15 per cent. of the total body weight. The experiments show that a circulatory impairment following venous obstruction of the return of blood from the four limbs of an etherized animal is sufficient to produce the signs of shock.

10. **Secretory Pressure of Liver.**—The secretory pressure of the liver was found to vary considerably in various species of animals. The reason for this is not clear; there may be many causes; however, the presence or absence of the gallbladder does not seem to be one of them. The secretary pressure of the liver appears to be somewhat greater in unanesthetized animals than in those under an anesthetic, but since the data obtained on anesthetized animals were only comparative, the conclusion that the presence or absence of the gallbladder bears no relation to the secretory pressure of the liver is justified.

Boston Medical and Surgical Journal

Nov. 14, 1918, **179**, No. 20

11 Modern Art and Mass Psychotherapy. S. E. Jelliffe.—p. 609.
12 Shall We Never Learn? D. M. Lewis.—p. 613.
13 Neuroses Among Returned Soldiers. Types and Indications. C. B. Farrar.—p. 615.

Colorado Medicine

November, 1918, **15**, No. 11

14 Work of Draft Boards. J. R. Barber.—p. 267.
15 Nation's Need of Doctors and Nurses for Army. H. G. Wetherill. —p. 271.
16 Insanity. Prevention and Treatment as a State Problem. G. A. Moleen.—p. 273.
17 Case of Hysterical Lameness with Convulsions Treated by Suggestion. C. S. Bluemel.—p. 280.

Indiana State Medical Association Journal

Nov. 15, 1918, **11**, No. 11

18 Educational Qualifications for Practice of Medicine. B. D. Myers. —p. 401.
19 Fistula in Ano. C. F. Fleming.—p. 404.

Journal of the Medical Society of New Jersey, Orange

November, 1918, **15**, No. 11

20 Pathology of Epidemic Influenza. A. R. Casilli.—p. 373.
21 After Dinner Addresses. J. F. Patterson, Orange.—p. 374.

Journal of Pharmacology and Experimental Therapeutics

October, 1918, **12**, No. 3

22 *Anthelmintics: Their Efficiency as Tested on Earthworms. T. Sollmann.—p. 129.
23 *Differences in Action of Drugs on Different Parts of Bowel. W. C. Alvarez.—p. 171.
24 *Liberation of Internal Secretion of Thyroid Into Blood. J. M. Rogoff.—p. 193.
25 *Preparation of a Soluble Concentrated Product of the Thyroid Gland. J. M. Rogoff.—p. 207.

22. **Efficiency of Anthelmintics.**—Sixty-nine drugs or combinations were tested by Sollmann as to their anthelmintic property. He found that the highest vermicidal efficiency is possessed by substitutes that are not clinically available for this purpose; namely, mercuric chlorid, cupric sulphate, and mustard oil. Sollmann suggests that by virtue of this effect, anthelmintics doubtless often "expel" the parasite when the concentration does not rise sufficiently high to kill the worm.

23. **Action of Drugs on Different Parts of Intestine.**—This study was undertaken by Alvarez with the hope that light might be thrown on the physiology as well as pharmacology of the intestine. Other work convinced him that there are marked differences in the neuromuscular apparatus in different parts of the tract. Five segments excised from different parts of the rabbit's intestine were studied under identical conditions in warm aerated Locke's solution. Seventy-six substances were tested. Physostigmin, glucose, mercuric chlorid, pilocarpin, potassium chlorid and sodium bicarbonate stimulated all parts about equally, whereas alum, bile, calcium chlorid, cocain and ether depressed all parts about equally. Some of these drugs stimulate in small doses and depress in large; some depress or stimulate after an initial stimulation or depression; others affect one segment one way and another segment the other way. A number of substances stimulated or depressed one end of the bowel more than the other, while a few stimulated one end and actually depressed the other. Among the drugs which might steepen

the gradient were epinephrin, aloin, cascara, magnesium sulphate, sodium citrate, sodium bicarbonate and sodium chlorid. Among drugs which might reverse the gradient were digitalis, ergot, ipecac, potassium iodid, sodium salicylate and morphin sulphate. The depressant effects of alum, carbon dioxid, cascara, senna and sodium nitrite were usually more marked in the colon than in any part of the small bowel. Mercuric chlorid generally stimulated the colon less than the small intestine. Sodium salicylate sometimes stimulated the colon more than it did the small intestine. Benzene usually stimulated the small intestine and depressed the colon. Similar effects were obtained with lead acetate and phenol. They were observed less constantly with chloroform, copper sulphate, sodium chlorid and sodium citrate. Morphin generally increased the amplitude of the colonic contractions while it sometimes depressed the activity of the small bowel. Picric acid, in several experiments, markedly stimulated the colon and at the same time, depressed the small bowel.

24. **Liberation of Internal Secretion of Thyroid Into Blood.**—The object of this investigation was to determine whether it is possible to detect, in the blood coming from the thyroid, a substance whose physiologic activity corresponds to that of the gland. Rogoff reports the results of a preliminary set of experiments with blood obtained from the thyroid glands of three dogs, in which the tadpole reaction was employed. One dog, whose thyroid glands were rich in colloid and had a good iodin content, yielded evidence of an active secretion into the blood collected from the glands during massage and during stimulation of the cervical sympathetic nerve. Two dogs whose thyroid glands were hyperplastic and contained no detectable iodin yielded negative results.

25. **Soluble Product of the Thyroid Gland.**—The product "A" obtained by alkaline hydrolysis of normal thyroids of hogs, according to Kendall's method (1); was subjected by Rogoff to further hydrolysis in water acidified with hydrochloric acid. When the substance was completely digested the resulting solution was filtered through a Chamberland filter. To the clear filtrate was added hydrated aluminum silicate (Lloyd's reagent) and the mixture thoroughly shaken and filtered through paper. The hydrated aluminum silicate on the filter was thoroughly washed with water until all of the acid was washed out. The absorbed product was separated by slowly percolating through the material on the filter a dilute solution of ammonia in water until the percolate came through entirely colorless. The ammoniacal solution was then heated on a water bath and the ammonia driven off with the aid of a current of air passed through the solution. The resulting aqueous solution was reddish brown and on evaporation yielded an amorphous powder. This powder contained 13.44 mg. of iodin per gram of dry substance and the product "A" from which it was obtained contained 16 mg. per gram. A small quantity of the product was available for feeding experiments with tadpoles. This product showed very nearly the same degree of activity as the product "A" from which it was obtained.

Kansas Medical Society Journal

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26 Clinical Value of Wassermann Reaction and Other Laboratory Tests in Diagnosis of Syphilis. H. M. Conner.—p. 263.
27 When and How to Remove Tonsils. T. L. Higginbotham.—p. 267.
28 Spiritual vs. Medical Advice. D. D. Wilson.—p. 269.

Kentucky Medical Journal, Bowling Green

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29 Nitrous Oxid in Labor. L. C. Redmon, Lexington.—p. 499.
30 Twilight Sleep. J. A. Orr, Paris.—p. 500.
31 Pituitrin; Its Uses and Abuses. E. Speidel, Louisville.—p. 503.
32 Rupture of Pregnant Uterus. H. L. Read, Louisville.—p. 505.
33 Prolapse of Uterus. H. A. Gilliam, Milburn.—p. 506.
34 Pelvic Infections. W. E. Fallis, Louisville.—p. 507.
35 Mixed Infection Pneumonia. A. W. Nickell, Louisville.—p. 511.
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37 Dichloramine-T in Treatment of Wounds. T. R. Griffin.—p. 514.
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39 Treatment of Cardiac Diseases by Measures Other Than Drugs C. Pope, Louisville.—p. 519.
40 Infantile Paralysis. R. N. Filiatrean, Sorgho.—p. 528.
41 Tribute to Dr. Avington Simpson Cook. J. F. Young, Monticello. —p. 529.

Maine Medical Association Journal

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42 Compulsory School Physicians in Maine. J. A. Spalding.—p. 81.
43 Sporotrichosis. Report of Case. D. B. Cragin, T. E. Hardy and J. F. Shaw.—p. 93.

Medical Record

Nov. 16, 1918, **94**, No. 20

44 Tuberculosis: Diagnosis and Treatment with Roentgen Ray. A. R. McMichael.—p. 839.
45 *Cancer of Thyroid. D. C. Balfour.—p. 847.
46 Shall Women Study Medicine? A. S. Daniel.—p. 850.
47 *New Method of Percussion. A. Abrams.—p. 855.
48 Value of Salicylates in Treatment of Influenza. B. Robinson. —p. 856.

45. **Cancer of Thyroid.**—One hundred and three cases of cancer of the thyroid were seen in the Mayo Clinic, a percentage of 1.6 of 6,359 cases of goiter, exclusive of the exophthalmic group. The cancer incidence, based on 14,456 patients with goiters, is 1.19 per cent. Of the 103 patients, 81.5 per cent. were more than 40 years old. Sixty-eight (68 per cent.) of the patients were females, thirty-five (35 per cent.) were males. The most important lesson to be drawn from an analysis of these cases, Balfour says, is the fact that in 46 per cent. no clinical manifestations of the disease were in evidence. This group shows by far the highest percentage (about 70) of patients free from recurrence at the present time. In other words, the great majority of apparent cures have occurred in those cases in which the malignant change was an unexpected finding. Total thyroidectomy was rarely performed in this group. In most instances the lobe containing the tumor and the malignant process was removed, but in many the enucleation of an adenoma was the procedure. The analysis showed also that when clinical evidences of cancer are present the results of surgical treatment are discouraging. Total extirpation of the gland appears to be indicated only when both lobes are grossly involved in the disease, and when past experience warrants surgical interference in the particular case. Recognizable involvement of cervical glands usually means that the time for surgical cure is past. Occasionally, however, just as the unexpected occurs in the treatment of extensive cancer elsewhere, an apparent cure is obtained. Gross involvement of trachea or esophagus is almost a certain sign against curability. In this series the average number of years of abnormal growth in the thyroid preceding the operation was 11.6. This Balfour regards as being proof positive of the advisability of the early removal of well-developed thyroid nodules.

47. **New Method of Percussion.**—The method described by Abrams embodies the principle of transsonance and is executed by continuous or intermittent direct percussion (without the interposition of a plexímeter) with the finger at the acromial extremity of either clavicle. In very fat individuals a plexímeter may be used and the latter struck by aid of a plexor with a soft rubber end. In the execution of the method cognizance is taken of the following components which make up the maneuver: (1) dulness; (2) palpatory percussion; (3) auscultatory percussion.

Missouri State Medical Journal

November, 1918, **15**, No. 11

49 *Prostatic Enucleation. L. Rosenwald.—p. 385.
50 *Painful Feet. R. HcE. Shaeffer.—p. 387.
51 Chronic Backache from an Orthopedic Standpoint. A. E. Horwitz. —p. 389.
52 Pernicious Anemia Treated by Multiple Transfusion and Splenectomy. E. Schisler.—p. 392.
53 Need of a Well Equipped Laboratory in Connection with the State Board of Health. W. A. Clark.—p. 395.
54 Some Neglected Fields in Medicine and Their Relation to General Practice. J. W. Bolton.—p. 399.
55 *Small Hospitals in Rural Districts, Their Benefit to the Laity and Physician. N. I. Stebbins.—p. 402.

49. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.
50. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.
55. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

New York Medical Journal

Nov. 16, 1918, 108, No. 20

56 Operation for Senile Cataract. F. Allport.—p. 841.
57 Intravenous Injections of a Nonbacterial Split Protein in Treatment of Influenza. R. G. Snyder.—p. 843.
58 Treatment of Influenza Pneumonia. J. M. Taylor.—p. 847.
59 Need for Medical Supervision During Pregnancy. A. Routh.—p. 848.
60 Orificial Lues. W. P. Cunningham.—p. 851.
61 Ingrown Toenail and Coup D'Hache. D. H. Stewart.—p. 858.
62 Prophylaxis of Hay Fever. H. C. Lane.—p. 859.
63 Carrel-Dakin Treatment of Infected Wounds. W. Fuller.—p. 861.

Ohio State Medical Journal

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64 Healing of the Tubercle. F. Warner.—p. 628.
65 Therapeutics of Influenza. E. W. Mitchell.—p. 634.
66 Some Phases of Influenza. C. H. Higgins.—p. 635.

Oklahoma State Medical Journal

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67 Obstetric Morbidity. W. A. Fowler.—p. 345.
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69 Complications That May Accompany Dentition. H. M. Williams.—p. 360.
70 Gonorrheal Infection of Uterus. J. S. Hartford.—p. 364.

United States Naval Medical Bulletin

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73 Diagnosis and Surgical Judgment in Acute Abdominal Pain. P. J. Murphy.—p. 385.
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77 With Destroyers in War Zone. L. H. Williams.—p. 403.
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87 Spontaneous Pneumothorax. A. G. Sund.—p. 451.
88 Heart Block and Dropped Beats. N. H. Clark.—p. 452.
89 Streptococcal Empyema. A. E. Younie.—p. 453.
90 Bullet in Apex of Right Lung. F. J. Dever.—p. 455.
92 Chronic Malaria. W. C. Espach.—p. 457.
93 Case of Erythema Bullosum. F. W. Hartman.—p. 464.
94 Case of Erythema Nodosum. G. A. Gray.—p. 467.
95 Early Cerebral Syphilis. C. A. Ainslie.—p. 469.
96 Case of Diabetes Insipidus. E. E. Moody and C. F. Carter.—p. 471.
97 Case of Emphysema of Conjunctiva and Sclera. J. P. Israel.—p. 473.
98 Treatment of Cerebrospinal Fever. W. E. Golden.—p. 474.
99 Treatment of Fracture of Nasal Bones. E. A. Knorr.—p. 477.
100 Treatment of Fractures Mandible. D. J. Alexander.—p. 478.

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101 *Heart Murmurs in Recruits. J. F. B. Cordeiro.—p. 577.
102 Cardiac and Tubercular Disease. H. S. Anders.—p. 584.
103 *Athletics and Their Relation to War. D. F. Luby.—p. 592.
104 Memoranda for Medical Officers. A. Farenholt.—p. 601.
105 Endocrine Manifestations. S. G. Straus.—p. 609.
106 *Study of Dengue at St. Thomas, V. I. F. F. Lane.—p. 615.
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108 Cerebrospinal Fever at Great Lakes, Ill. J. T. Short.—p. 627.
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116 Large Calculus Removed from Common Duct. R. G. LeConte.—p. 710.
117 Circumcision in Presence of Chancroid. J. S. Van Winkle.—p. 712.
118 Persistence of the Thyroglossal Duct. B. D. Parish.—p. 713.
119 Rupture of Popliteal Aneurysm. F. J. Dever.—p. 715.
120 Pericardial Effusion. J. M. Perret.—p. 717.
121 Enlargement of Salivary Glands. R. S. Boles.—p. 719.
122 Dendritic Calculi in the Kidney. G. G. Ross.—p. 720.
123 Foreign Body in Bronchus. E. W. Gould.—p. 721.
124 Case of Multiple Sebaceous Cysts. G. A. Gray.—p. 722.
125 Case of Undulant Fever. J. C. Parham.—p. 723.

101. Heart Murmurs in Recruits.—When examining some thousands of applicants for the Naval Reserve, Cordeiro found that pulmonary murmurs far outnumbered all other forms of murmurs—perhaps ten to one. The majority of the pulmonic murmurs were found chiefly among runners, though they occur in all forms of athletics where there is a steady prolonged grind. The strain of a race is thrown almost wholly on the right heart. The left heart participates to a much less degree. The call is for blood and air in the lungs and the right heart endeavors to supply a double amount of the former. The pain in the side is a symptom of this abnormal effort. The pathologic history of these cases seems to be as follows: At first, after each abnormal dilation, the heart contracts to its normal size, or nearly so. But a physiologic hypertrophy accompanies these efforts and the pulmonary orifice, instead of contracting to its former dimensions, eventually overcontracts and becomes slightly narrowed. This may be furthered by the development of new muscular tissue about the orifice. These murmurs, while occurring chiefly among runners, were also found in footballers, basket-ball players, boxers, wrestlers and among rowing men. Baseball players seemed to be least affected. Many college boys, undeveloped and imperfectly developing, without proper food at home, and often without a midday meal, practice assiduously every afternon on a field. While their anemic systems are struggling with the burden of the rapid growth after puberty, they subject their hearts to the added strain of the track.

Another class of cases of pulmonary direct murmurs, which, while indistinguishable clinically from athletic murmurs, have been found less often, and present a picture of their own. These cases can be attributed to an incoordinated development of the great vessels relatively to other parts of the body. Cordeiro has called them tentatively, hypoplastic murmurs. They occur only among the poorer classes and seem to be clearly the result of insufficient nutrition. There is usually a weedy growth in which the nutrition seems to be expended wholly in increasing the length of the body while the other parts remain stationary—notably the great vessels. The rule in such cases is that the subjects are very much under weight for their height—20 to 40 pounds underweight. Their complexions and skins are pasty and pimply, in marked contract to the clear skin of health, in which specimens there are never heart murmurs.

As a result of his investigation, Cordeiro is convinced that athletes, professional and amateur, are of distinctly less value from a military point of view than the average normal man. He suggests that one of the reforms springing out of this war will be—not the abolition of athletics, but a revision of the present athletic system. Physical exercise from a recreational and hygienic point of view is necessary, but beyond that point is a waste of time and may be injurious. Track athletics among boys he regards as criminal, and among their elders is of no value to the participants or the community, but on the contrary tends to spoil what would otherwise have been good military material.

103. Athletics and Their Relation to War.—Luby draws attention to the fallacies of our athletic system as developed up to the present time. He points out the uselessness of the object sought, and asserts that there was no gain but rather serious loss to those who participated in athletics in the past. He pleads for a radical change in methods and objectives in the athletics of the preparatory school, the college, and the university. He says that one of the most serious faults of our present athletic system, a vicious, pernicious system, if ever there was one, is the necessity for haste. Trainers work feverishly and anxiously to develop a winning team. They must develop such a team at all costs because failure means the loss of a job. Medical men and, to a certain extent, military men recognize that there is something wrong with athletics as now conducted in America. If boys are allowed to follow the pernicious course which begins in the grammar school or preparatory school and ends only with the university, they must pay the price, as their predecessors have done. To neglect the most careful athletic development of boys is to sap the very roots of strength and vitality in the future material of the Army and Navy.

While it is generally admitted that military training has considerable incidental advantages from the point of view of health, it would seem that the first thing to be considered is the universal physical training of boys. The plan proposed by Luby is as follows: All branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and not on the basis of popularity and commercial advantage. In the grammar school the form of athletics to which a boy could be assigned or in which he would be permitted to engage in would depend on (1) his family history; (2) his personal history, having regard especially to previous illnesses endured; (3) his physical status; (4) his particular type, height, weight, etc., in relation to age, etc. Every class should have its specially prescribed athletics, both physical and tactical, and under no circumstances should a lad be allowed to engage in competitive sports assigned to a class above or below his own. A physical examination would mark his entry and exit from a class and he would be marked for development of body and for ability to perform the various tactics. While in the grammar school a chart would be begun for him which would accompany him throughout his educational career.

As the boy passes on to the higher school there should be a reconsideration of his individual record and his family history. A physical examination should be made and his chart and previous athletic work considered. There should be athletic classes and all members of a school or college should participate, except when exempted for physical disability. Outside competitions with other schools would be reduced and the competitive idea find its illustration principally in interclass games. Work in the gymnasium should accompany and parallel the work done in teams and athletic games. Where students show beyond all reasonable doubt a real and permanent improvement in body and an increased ability to participate in various branches of sport they should receive credits at the hands of the college authorities in the same way that credits are given for scholarship.

All athletics of the more strenuous type and all those contests which inevitably induce even temporary exhaustion must be abolished. Mass competition, such as that in which a class would participate as a whole, is to be encouraged. New feats of prowess should be introduced. There should be walking contests, wall-scaling contests, obstacle raising, hurdling, shorter relay events with increased personnel, more soccer football, shot putting with a lighter shot, etc. The athletics of today must be remolded and their object clearly defined. Athletics can have no better purpose than to develop a robust and healthy boy who, though he may not be an interscholastic champion or sought after by the larger colleges as likely to increase their fame, will nevertheless enter on his life work with a symmetrical, fully developed body, capable of resisting disease and of enduring physical strain. For such a young man the training camp, the transport, and the trench will not contain the threat of death from disease before his grapple with the enemy.

Reports from General Pershing's Army showed that the highest mortality from communicable disease was in the National Army and the lowest on the Regular Army. Luby believes that the variation in susceptibility can be ascribed directly to the variation in the time of preparation and development which these different units have enjoyed, the development of the National Army having been characterized by intensive training and high speed. He believes further that the accumulation of fatigue substances from overtraining for lengthy periods without proper attention to the time element brought about a condition analogous to that seen in the stale athlete, and it is not to be wondered at that the overtrained soldier should be particularly liable to pneumonia, scarlet fever, influenza, etc. Luby's study of soldiers on transports confirmed this belief.—The men were trained "too fine!"

10 Dengue at St. Thomas, V. I.—Lane has made a careful analysis of cases seen during an epidemic of dengue which suddenly made its appearance among the Americans who had been on St. Thomas Island three to eight months. These cases presented some peculiar features. The immediate source of the infection was unknown. The important feature, however, was the agent carrying the infection. The *Stegomyia calopus* is practically the only mosquito seen and inhabitating the localities where the disease was most prevalent, and the only place where the mosquito bite seemed to do any damage. The mild character of the bone pains was characteristic. Involvement of the lymph glands, in many cases, was quite severe. No breaking down or suppuration subsequently has been noted. Not one set of glands but all the large superficial glands throughout the body were involved. Epistaxis, although it occurred in only 10 per cent. of the cases, was very severe and difficult to control. Pain on forced motion of the eyeballs was the principal cause of the symptoms described by the patient as "headache" or "pain in the eyes." The pain was only elicited on extreme motion. Hyperesthesia, of a most intense variety, was noted when the shoulder was unconsciously touched by the examiner. Vasomotor phenomena occurred from the sixth to the eighth day, causing a cyanosis and coldness of the arms, hands, lower legs, and feet in about 17 per cent. of cases. The disappearance of the eruption was followed in about twenty-four hours by a quite severe and long-continued desquamation, accompanied by intense itching at times, a sensation as of swelling of the hands and feet, and a continual and profuse sweating of these parts. Blood examination did not show on the average the very low leukocyte count and the discrepancy in the differential count usually acredited to dengue, yet these findings were sufficiently marked in a number of cases to accord perfectly with other descriptions. These blood findings depended largely on the severity of the attack.

A very disturbing feature in the convalescence, from the patient's standpoint, was the inability to relish food due to the bad metallic taste that everything had, although the appetite was quite keen. All the ordinary work could be performed without any difficulty, but the least extra strain, such as fast walking or going up hill, brought on an intense weakness and fatigue which had not been present before the fever and which it took some days and, in many cases, weeks to overcome. In most cases immunity seems to hold after one attack, but about 5 to 8 per cent. of the patients had a recurrence three weeks to several years after the original attack.

The epidemic gradually faded out. With the decrease in rainfall it had almost disappeared. Only an occasional individual who had just arrived would become infected. During the dry season when mosquitoes were very few, dengue was practically absent. The control of the mosquitoes and their breeding places has improved conditions to a slight degree, but the inability to obtain screening for the town, the lack of a properly trained corps of sanitary inspectors, and the difficulty in educating the people (natives) do not give much hope of freedom from dengue in the near future.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

Oct. 26, 1918, **2**, No. 3017

1 Doctrine of Consumption in Harvey's Time and To-day. P. Kidd. —p. 455.
2 *Advantages of Intramuscular Injections of Soluble Cinchonin Salts in Severe Malarial Infections. L. Rogers.—p. 459.
3 Epidemic Encephalitis. Analysis of Sixteen Cases. A. J. Hall. —p. 461.
4 *Quinin Prophylaxis in Malaria. G. W. Scott.—p. 463.
5 *Unreliability of Sulphur for Destruction of Lice in Clothing. A. Bacot.—p. 464.

2. **Injection of Soluble Cinchonin Salts in Malaria.**—Experiments were made by Rogers to ascertain the rapidity and completeness of the absorption from muscle of quinin and cinchonin bihydrochlorid, respectively. In animals killed twelve hours after injection, 88 mg. of absorbed alkaloid were recovered from the organs in the case of the cinchonin sal., as compared with only 30 mg. in the quinin animal, showing approximately three times as great absorption in the practically important first twelve hours. On the other hand, 80 mg. of the precipitated quinin was recovered from

the muscle after twelve hours, as against 40 mg. of precipitated alkaloid in the cinchonin animal. At the end of twenty-four hours 65 mg. were recovered locally from the quinin animal against only 30 mg. from the cinchonin one, while 65 mg. were recovered from the organs of the cinchonin animal (where the alkaloid would come into contact with the malarial parasites) against 26 mg. in the quinin one. At the end of seventy-two hours the organs only showed 2 and 8 mg., respectively, showing that absorption must have now nearly ceased, and most of the drug had already been eliminated from the body, presumably through the kidneys. The injected muscle now showed no less than 28 mg. of precipitated quinin still remaining in it, against only 10 mg. of alkaloid in the cinchonin animal, thus indicating that the absorption of the cinchonin salt was much more complete at the end of three days than of the quinin one. This fact, taken with the three times as rapid absorption during the first twelve hours of the cinchonin bihydrochlorid, indicates that the latter is far superior to quinin bihydrochlorid when given by the intramuscular route with a view to rapid absorption and action in a severe malarial infection.

The clinical effect on the animals was even more striking, for whereas the animals injected with the quinin salts appeared to suffer from no definite symptoms of poisoning, the cinchonin animals, on the other hand, became violently convulsed within half an hour of the injection, indicating very rapid absorption of the drug, a relatively very large dose having purposely been given.

In the treatment of human cases, the acid hydrobromid has been mainly used for intravenous and the bihydrochlorid for intramuscular and subcutaneous injections. By each method of injecting the cinchonin salts, rapid disappearance of both the fever and of the parasites from the peripheral blood was obtained in all three varieties of malaria. In the benign tertian and quartan cases the parasites always disappeared in one or two days, and in all but one the fever ceased within the same time, and in the remaining one within three days. In the malignant tertian variety the parasites generally disappeared within two days and always within three, and the fever ceased within the same period of time. The immediate results of the injection of the cinchonin salts were thus very satisfactory, and compare favorably, especially as regards the more serious malignant tertian variety, with those of administering quinin by various methods in the army in England. In severe cases of malaria and during the prevalence of pernicious cases, as well as in patients who vomit orally administered quinin, Rogers suggests the further trial of intramuscular injections of 7.5, 10, and in adult males up to 15 grains of cinchonin bihydrochlorid (or in less severe cases, if preferred, the cinchonin acid hydrobromid, which produces less cinchonism) during the first few days of an attack of malaria, to be followed by a full course of quinin orally to prevent relapses.

4. **Quinin Prophylaxis in Malaria.**—The members of one group of rubber workers, the tappers, were given 10 grains of quinin each day for one year, and during that period no prophylactic quinin was issued to a second class of workers, the weeders, in order to determine the value of quinin prophylaxis against malaria. The result was entirely negative. The treatment gave no protection whatsoever against malaria.

5. **Sulphur as a Lice Destroyer.**—The trials forming the basis of this note were undertaken with a view to testing the efficiency of a process of fumigation as applied in the London Borough casual wards. The results of these experiments were entirely unsatisfactory, hence Bacot suggests reliance on heat, wherever possible, for the destruction of insect vermin, half an hour's exposure to a temperature of 55 C. being amply sufficient with either dry or moist heat, provided the clothing or other articles are suspended, and not bundled.

Dublin Journal of Medical Science

September, 1918, **146**, No. 561

6 *Clinical Report of the Rotunda Hospital for 1916 and 1917. W. Smyly, R. Purefoy and E. H. Tweedy.—p. 101.
7 Leechcraft in Afghanistan. I. Ali Shah.—p. 122.
8 Medical Diseases of the War. A. F. Hurst.—p. 129.
9 Practical Organic and Biochemistry. R. H. A. Plimmer.—p. 130.
10 Dublin University Calendar for Year 1918-1919. Hodges, Figgis & Co.—p. 131.
11 Field Sanitation. C. G. Moor.—p. 132.
12 War Surgery of the Abdomen. C. Wallace.—p. 133.
13 Conduction of Nervous Impulse. K. Lucas.—p. 134.
14 Internal Secretions. E. Gley.—p. 136.

6. **Clinical Report of Rotunda Hospital.**—A total of 3,090 labors were attended by the hospital staff during the year. There were seven deaths. Two were due to hemorrhage, one to rupture of the uterus, one to eclampsia, one to cerebral hemorrhage, one to advanced pulmonary phthisis, and one patient was hopelessly septic when admitted. Among the complications were five cases of rupture of the uterus. A sixth case was sent into the hospital after the accident had occurred. Of the six patients, one mother died. Of nine cases of eclampsia, only one proved fatal, a mortality of 11 per cent. Besides these cases of eclampsia there were twelve of toxemia, the so-called pre-eclamptic state: all the patients recovered. Five labors were complicated bu uterine myoma, in three of which there was serious trouble including one death from hemorrhage. There was one case of mania. Forceps were applied 70 times. Version was performed ten times—three external, four bipolar, and three internal. External manipulation was twice employed to convert the breech into a vertex presentation. Bumm's subcutaneous pubiotomy was performed on two occasions, with satisfactory results as regards the mothers, but one child was stillborn, and the other died on the sixth day. Premature labor was induced five times, three times for toxemia, once for pelvic deformity, and once for mitral stenosis. Cesarean section was performed fifteen times, namely, in nine cases of pelvic deformity, in three of rupture of the uterus, twice for myoma, and once for anus vaginalis. The placenta was removed manually twenty-two times. Five cases of melena in infants were treated with horse serum, with one death.

Indian Journal of Medical Research

July, 1918, **6**, No. 1

15 Detection of Hookworm Infection. C. Lane.—p. 1.
16 Examination of Relationships by Statistical Methods. G. T. Walker.—p. 26.
17 *Food Value of Groundnut (Peanut). R. L. M. Wallis.—p. 46.
18 Antiberiberi Vitamin Content of Three Kinds of Atta Biscuits. E. D. W. Greig and D. F. Curjel.—p. 56.
19 Latent Dysentery. J. Cunningham.—p. 68.
20 Laboratory Study of a Diphtheria Outbreak. R. Knowles.—p. 102.
21 *Use of Strychnin in Diagnosis of Malaria. H. H. King.—p. 116.
22 Romanowsky Staining. H. E. Shortt.—p. 124.

17. **Food Value of Groundnut.**—Wallis regards the groundnut or peanut as an especially valuable source of protein. It would seem that in India, where this legume grows in abundance, Nature had provided a cheap and efficient source of nitrogenous material to supplement the diet of the natives, which is rich in carbohydrates and poor in protein. The adoption of groundnut cake as a food is urged both on scientific and economic grounds. Wheat, oats, and several other cereals are markedly deficient in the so-called basic amino-acids, and groundnut cake contains the largest amount of these building stones of any known cake. To be palatable, easily digested and free from any objectionable taste, it requires to be properly prepared. The groundnuts as obtained after decortication must be washed free from grit, dirt, stones, etc., and have the red skin coating the kernels removed. The clean, white kernels are now subjected to hydraulic pressure to remove the arachis oil. After this expression, which should always be carried out in the cold, the groundnut cake still contains too much oil—between 9 and 10 per cent., or even as much as 15 per cent. Such a cake when ground up will yield a flour with a taste of the groundnut, which is slightly bitter. Further, it contains too much oil to be really serviceable for the making of bread or biscuits.

A large number of experiments were carried out by Wallis with such a cake, but it was found that the bread made from it was always too heavy. By warming the cake

and then subjecting it again to hydraulic pressure, some of this oil is removed. The cake is now ground up, and yields an excellent flour, which possesses a slightly sweet taste, and is far superior in every way to the cake containing 10 per cent. or more of oil. The small amount of oil remaining, usually about 5 per cent., is, on the whole, beneficial, since it tends to preserve the flour, increase its nutritive properties, and makes a light and easily preserved biscuit. All objections to the groundnut as an article of food are thus removed, since the oil is the constituent responsible for any undesirable effects. Wallis suggests that in view of the shortage of the world's food supplies, both now and after the termination of the war, it would appear advisable to consider the utility of developing this industry with a view to the preparation of peanut flour on a large scale.

21. **Strychnin in Diagnosis of Malaria.**—Di Paca says that repeated doses of strychnin or berberin are useful in the diagnosis of malaria by increasing the number of parasites in the peripheral circulation. The dose of strychnin advocated is from 2 to 4 mg. by the mouth, or 2 or 3 mg. hypodermically every hour for four hours. The blood is then to be taken from the lobe of an ear at the end of the fourth hour. If it be true that strychnin has this effect, the observation is an important one, since it would materially aid the study of malaria and of malarial relapse. King tested this use of strychnin by comparing with each other blood slides taken before and after its administration. He found that strychnin in large doses (20 or 30 minims of liquor strychninae hydrochloridi, B. P., in five hours) will in half of the cases definitely contract a large spleen, but have no appreciable action on small spleens. In most cases it will not increase the number of parasites in the peripheral circulation. Hence, as a routine aid to diagnosis, strychnin has no place. King suggests that the blood pressure raising group of drugs, such as strychnin, be tried in the treatment of malaria in the early as well as in the late stages as an adjuvant to quinin.

Indian Medical Gazette

September, 1918, **53**, No. 9

23 *Unclassified Form of Long Continued Pyrexia in Mesopotamia. C. A. Sprawson and F. P. Mackie.—p. 321.
24 Principles of Military Orthopedics. Constitution of Orthopedic Hospital. A. W. Sheen.—p. 328.
25 Cases Treated with Radium. J. C. Vaughan.—p. 333.
26 Mirror of Hospital Practice. C. A. F. Hingston.—p. 336.
27 Case of Primary Abscess of Spleen. J. Winterbotham.—p. 340.

23. **Long Continued Fever of Mesopotamia.**—The diseases to which the condition described has most resemblance are kala-azar, pulmonary tuberculosis, and malaria, either singly or a combination of kala-azar or malaria with tuberculosis. The condition has special resemblance to kala-azar, especially in its long continued pyrexia and in the leukopenia present and in the pigmentation. No Leishman-Donovan parasite, however, has been recovered from spleen or liver puncture either before or after death. Quinin, arsphenamin, antimony tartrate intravenously, and arsenic by the mouth seem to exert no influence on the course of the pyrexia. Moderate doses of potassium iodid have hitherto given most satisfaction. It is suggested that the disease will prove to be due to infection with a streptothrix-like parasite and therefore may be described as a "disseminated nocardiasis." The disease exhibits bronchitic, pulmonary or pleuritic signs at some period of its course. It may be fatal or spontaneous recovery may occur.

Archives des Maladies du Cœur, etc., Paris

September, 1918, **11**, No. 9

28 Sinusal Bradycardia with Paradoxic Response to Atropin. A. Cramer.—p. 385.
29 Deceptive Case of Mitral Stenosis. Laubry and Esmein.—p. 389.
30 Extrinsic Causes of Shock in the Wounded. C. Vincent.—p. 394.

Bulletin de l'Académie de Médecine, Paris

Oct. 8, 1918, **80**, No. 40

31 *The Blood and the Urine in Influenza. G. Patein.—p. 304.
32 *Uremia After War Wounds. H. Reynès.—p. 308.
33 *Spirochetes in Influenza Sputum. De Verbizier.—p. 310.

31. **The Blood and Urine in Influenza.**—Patein comments on the surprisingly high urea content of the urine in his influenza cases.

32. **Uremia After War Wounds.**—Reynès found from 30 to 45 gm. of urea per liter in twenty-four hours in 30 cases of war wounds. About 210 analyses were made and they showed the gradual rise of the urea content of urine and blood, paralleling the gravity of the symptoms. The urea comes from the absorbed products of the disintegration of devitalized tissues, and by watching over the urea content of the urine it is possible to ward off serious uremia by giving hot sweetened drinks in abundance, with other means to stimulate diuresis. No nitrogenous food should be allowed, no milk, but saline purges should be given repeatedly. Other measures to combat uremia include warmth, rubbings, venesection, lumbar puncture, intravenous injections of sugar solutions, and thorough clearing out of all devitalized tissue, with ample drainage. In conclusion he reiterates that the "uroprognosis from the daily urea curve" is extremely important.

33. **Spirochetes in Influenza Sputum.**—Verbizier has found two varieties of spirochetes along with pneumococci, streptococci and probable Pfeiffer bacilli in the sputum of his influenza patients.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 12, 1918, **42**, No. 25

34 *Walking Test of Heart. Joltrain and Baufle.—p. 745.
35 Production of Eosinophils and Basophils in Joints and Tissues. Petzetakis.—p. 749.
36 Epidemic Influenza. A. Florand.—p. 753.
37 Hypertension of Cerebrospinal Fluid After Ligation of Internal Jugular Vein. G. Guillain.—p. 757.
38 Claude Bernard-Horner Syndrome in Aviator After Fall. G. Guillain.—p. 761.
39 Purely Meningeal Form of Ictero-Hemorrhagic Spirochetosis. S. Costa and J. Troisier.—p. 762.
40 Tetragenus Sepsis Complications. Perfetti and Monziola.—p. 768.

34. **Walking Test of Functional Capacity of the Heart.**—Joltrain and Baufle comment on the instructive findings with the test of the heart which they apply. One hour after lunch the group being examined are sent for a walk over a certain course, from 2 to 15 miles long, under the surveillance of an experienced person. The walk is at a uniform pace, without resting, and the pulse is recorded before and after, and again as the individual reclines, perfectly still, the second, fourth, fifteenth, twentieth, thirtieth, forty-fifth and sixtieth minutes. No matter what the exertion, the tachycardia in a normal subject has always disappeared by the sixtieth minute.

Lyon Chirurgical, Lyons

May-June, 1918, **15**, No. 3

41 *Liver Abscesses in Macedonia. G. Cotte and Chifoliau.—p. 273.
42 *Sequelae of War Wounds of Chest. Péhu and Daguet.—p. 291.
43 *Complications of War Wounds of Lung. Combier and Hertz.—p. 311.
44 *Pleurectomy for Wounds of the Chest. Roux-Berger.—p. 330.
45 *Extraction of Projectile in Lung. R. Olivier.—p. 339.
46 Projectile in Anterior Wall of Heart Ventricle. B. Desplas and D. Chevalier.—p. 353.
47 *Gastroduodenal Ulcer and Appendicitis. M. Dubard.—p. 356.
48 Laws of Healing of Superficial Wounds. R. Ingebrigtsen.—p. 363.

41. **Liver Abscesses in Macedonian Campaign.**—Among the fifteen operative cases, the abscess had already perforated in three cases, and in all the diagnosis had been made tardily, but seven of the men recovered. The symptoms from the abscess had been masked by malaria or dysentery. The cases teach the importance of systematic exploration of the liver in search of suppuration when the liver is found enlarged in a person with or who has had dysentery. The outlook for operative relief is infinitely better when it comes early, and radioscopy and puncture usually permit an early diagnosis. In one case it proved possible to clean out the pus pocket and suture it, with filiform drainage and healing by primary intention.

42. **War Wounds of Chest.**—Péhu and Daguet found three cases of unmistakable pulmonary tuberculosis among 146 men with war wounds of the chest reexamined from four months to three years afterwards. In two others there was

pleurisy of tuberculous origin. They were impressed by the frequent complete return to normal after extravasation of blood or a suppurative process. With tuberculous pleurisy, on the other hand, there is liable to be involvement of the diaphragm, etc., leading to irreparable lesions.

43. **Septic Local Complications of Wounds of Chest.**—The experiences in fifteen cases which are reported in detail show that it is possible to ward off chronic purulent pleurisy by clearing out the septic effusion in the pleura, rendering the pocket sterile by Carrel's technic for irrigation and drainage, and then suturing at the earliest possible moment. The war experiences have demonstrated the harmlessness of incision of the pleura, without fear of pneumothorax. Exercises to expand the lung are an important factor in the cure, especially exercising with the spirometer.

44. **Pleurectomy for War Wounds.**—Roux-Berger describes four cases of total pleurectomy, shelling off the stiff and thickened pleura, and fastening the lung to the chest wall to ensure its expansion. Three of the four men were completely cured; the fourth still has a small fistula left.

45. **Tardy Extraction of Projectile in the Lung.**—The projectile had been causing trouble in only two of the fifteen cases reported. The transpleural operation with artificial pneumothorax seems to be the preferable technic. The powerful retractors now used allow the ribs to be spread apart to give ample room for exploring the lung. The lung is easily brought outside the wound, the foreign body removed, and the airtight suture made.

47. **Gastroduodenal Ulcer and Chronic Appendicitis, Etc.**—Dubard found chronic appendicitis unmistakable in over 33 per cent. of 145 cases of gastro-enterostomy for ulcer. In private practice, this percentage is even higher. The frequency of such associated lesions of the gastro-intestinal tract explains the failure to cure of operations on one of the lesions, leaving the others still in a position to cause disturbance. They teach the necessity for careful exploration of the entire digestive tract. In 33 per cent. of his thirty-six laparotomies for ulcers and pyloric stenosis, the appendix was found diseased, as also in 45 per cent. of forty operative duodenal ulcer cases. He states further that 80 per cent. of his gastric ulcer cases presented evidences of pulmonary tuberculosis at the time, florid, torpid or healed. In nearly or quite all of them, pressure on the pneumogastric nerve in the neck on one or both sides was painful. He calls this the "sign of the pneumogastric," and explains it as a neuritis of this nerve, of pulmonary origin, and possibly reflected along the entire gastro-intestinal distribution of these nerves. This affords a predisposition to trophic disturbance, liable to elicit ulceration and certain other chronic inflammatory processes in the digestive tract.

Paris Médical

Sept. 7, 1918, 8, No. 36

49 *Ophthalmology in 1918. F. Terrien.—p. 181.
50 Examination of Superior Conjunctiva. A. Terson.—p. 186.
51 *Otorhinolaryngology in 1918. L. Dufourmentel.—p. 190.
52 *Reconstruction after War Wound of Nose. Guisez.—p. 198.
53 Syphilis of the Pharynx. Bellin and Vernet.—p. 205.
54 Phlegmon Causing Jackson's Syndrome. H. Aloin.—p. 209.

49. **Ophthalmology in 1918.**—Terrien advocates the use of a mask to protect the eyes against scraps of shells, and has devised what seems to be a good model. He endorses Duverger's advice to retain the eyeball when the anterior portion only has been injured. In 150 penetrating wounds of the eye he succeeded in doing this in twenty-four cases, resecting down to sound tissue. He reviews among other works on ophthalmology published recently, Aubineau and LeNoble's study of nystagmus independent of eye and ear conditions; it must be classed with myoclonia. Also Weekers and Ferket's research on the multiple and diverse ocular disturbances liable to be encountered with icterohemorrhagic spirochetosis, including iritis, optic neuritis and herpes of the cornea. Every wound of the eye, it is emphasized, should be injected with a 1 per thousand solution of mercury cyanid, whether there is a foreign body present or not. This combats effectually the early infection in wounds of the eyes. If this had been done systematically in all the advanced stations, it is possible that the eyes might have been saved, in certain cases.

51. **Otorhinolaryngology in 1918.**—In Dufourmentel's review, he calls attention to Fay's statement that the disability from deafness does not depend on the acuity of the hearing but on the distance at which sounds are heard. Ability to hear the human voice is the gage of social impairment from deafness. The prognosis of deafness from shell commotion has proved favorable. The only treatment for war deafness that has proved effectual is by vocal reeducation and lip reading. Lombard's research on the sense of balance has established certain physiologic laws for antagonist movements with equilibration which have raised a number of new problems. A good illustration of some of these laws is afforded by the use of the balancing staff by the tight-rope walker. The physiologic laws he has determined impose certain attitudes for certain movements, and some of these attitudes have been perpetuated empirically in classic art. Among the recent progress in rhinology that has been realized is the appreciation of the pronounced tendency to spontaneous healing of war wounds of nasal sinuses. The mistake made at first was to regard and treat them like a sinusitis. Luc warns that a pointed trocar is liable to perforate the posterior wall of the maxillary sinus; a blunt instrument is better.

52. **Reconstruction of Nose.**—Seventeen illustrations show a number of devices to correct among other mutilations the loss of the tip of the nose. A triangle of bone and cartilage is cut extending sideways back of the nose, the straight side parallel with the upper jaw. This triangle is then swung around to bring the lateral tip on top. The flap then provides a normal outline for the nose.

Presse Médicale, Paris

Oct. 7, 1918, 26, No. 56

55 *Antagonistic Action of Epinephrin and Pituitary Extract on the Bronchi. B. A. Houssay (Buenos Aires).—p. 513.
56 Cases of Direct Commotion of Spinal Cord. H. Claude and J. Lhermitte.—p. 514.
57 *To Line Bone Cavity with Skin. D. Thévenard.—p. 515.
58 Natural Iodized Waters. G. Billard.—p. 518.
59 Falling of the Hair from Irritation Caused by Wax in Ear; Two Cases. J. Deroide.—p. 520.

Oct. 10, 1918, 26, No. 57

60 *The Influenza Pandemic. H. Violle.—p. 525.
61 Treatment of Influenza. G. Lyon.—p. 527.
62 *Present Status of War Surgery. G. Mancury.—p. 528.

55. **Antagonistic Action of Epinephrin and Pituitary Extract.**—Practically this same article was briefly summarized on page 1178, Oct. 5, 1918.

57. **Lining the Osteomyelitic Focus with Skin.**—Thévenard reports excellent results in the prompt healing of old and extensive inflammatory processes in bones by clearing out all devitalized tissue and lining with skin the deep groove left. The procedure is illustrated. The skin and subcutaneous tissue are incised to form square flaps each side of the bone focus. The bone lesion is cut to leave the focus as near a right angle as possible. A hole is bored through the soft parts and bone on one side to a point just above the inner angle of the gap in the bone, and a thread is drawn through. Then the loosened skin flap is drawn down into the gap to the lowest point, and is held there by tying the thread over a roll of gauze. The procedure is repeated on the other side, and the defect in the bone is thus lined smoothly with skin. The two flaps are fitted together where they meet at the inner angle, and may be held with a stitch. The threads are drawn only tight enough to hold the sets of gauze rolls in place.

60. **Influenza.**—Violle pleads for special hospitals for influenza patients, saying "Cases of fatal contagion of other patients already in the hospitals and left in contact with the influenza newcomers are already beyond counting, they are so numerous." It is equally important, he reiterates, to isolate, bacteriologically, influenza patients from each other. He advocates masks for all the healthy in contact with influenza patients, citing the favorable experiences with

masks in Manchuria during the epidemic of pneumonic plague.

He compares influenza with hog cholera as instances of infection by some one virus which opens the portal to another virus. In hog cholera, the invisible bacterium that unleashes the disease opens the portal to the paratyphoid bacillus. Without the latter there is no hog cholera, and yet we know that it is unable, alone, to induce hog cholera. Its presence is important both from the standpoint of prophylaxis and treatment, as the destruction of the paratyphoid bacilli seems to check the development of the still unknown primal bacterium of hog cholera. In influenza, the invisible virus causes such extreme prostration and has such toxic action that the ordinary microbes already present in the air passages or digestive tract rush into the gaps in the defenses. Nicolle calls these secondary invaders *microbes de sortie*. Probably even the Pfeiffer bacillus belongs in this group. All varieties and degrees of lesions may result, such as are possible when a virulent, toxin-producing and pyogenic microbe steps into a soil prepared in advance with ideal conditions for its rapid proliferation. One writer has said, "The reason why influenza kills, is because it strikes at the thorax." Meunier adds, *La grippe condamne et la surinfection exécute*. The true microbe of influenza may have already disappeared by the time this superposed infection strikes home.

Violle reasoned that if the superposed infection could be warded off, influenza would lose its danger. In his region, the pneumococcus seemed to be mainly responsible for it, and he treated his influenza patients systematically with antipneumococcus serum in the same way as antitetanus serum is given the wounded. Each patient was injected in each thigh with 20 c.c. of antipneumococcus serum four hours after a preliminary injection of 1 c.c. of the same serum, and 4 gm. of calcium chlorid were given by the mouth. A hot compress was laid over the site of the injection. He says, "The results obtained were remarkable; it may even be advanced that pulmonary complications are averted by this means. But it is effectual of course only when the pneumococcus is the causal agent of the pulmonary complications. In regions where the streptococcus is involved, an antiserum for this would have to be used, or both. It seems as if the streptococcus was responsible more for the pleural complications, and the pneumococcus for the pulmonary." He also tried convalescents' serum but, as at least 100 c.c. are required for each patient, he turned to autoserotherapy, and this has given conclusive results, he says, in several cases. He drew the blood from a vein in the arm and reinjected at once the 20 c.c. under the skin of the outer front of the thigh. He adds that this can be repeated day after day without any inconveniences.

62. **Present Status of War Surgery.**—This is the presidential address delivered by Manoury at the French Surgical Congress which convened at Paris, October 7. He emphasized the abyss that separates the surgery of the day from that which prevailed at the time of the last congress of the kind, five years ago. (See recent Paris Letters.)

Progrès Médical, Paris

Sept. 7, 1918, **33**, No. 36

63 *Hexamethylenamin in Tuberculosis. Loeper and Wagner.—p. 305.
64 Necessity for Early Nephrectomy with Renal Tuberculosis. R. Utean and M. Piollenc.—p. 305.
65 Gangrenous Phlegmon of Back of Hand. E. Chauvin.—p. 308.
66 *Adiposis Dolorosa and Lipomatosis. Bourdinière.—p. 309.

Sept. 14, 1918, **33**, No. 37

67 The Feebleminded at the Court Martial. J. Crinon.—p. 313.
68 *Epilepsy, Hysteria and Chorea in a Military Hospital. H. Damaye. —p. 315.
69 *Serum Anaphylaxis. J. Fièvez.—p. 318.

63. **Hexamethylenamin by the Vein in Tuberculosis.**—Loeper and Wagner declare that, in their experience, this drug injected intravenously in a daily dose of 1.25 or 1.5 gm. for about twenty days seemed to exert a decided action on the general febrile, toxic and septic reactions in tuberculosis, without any depressant action. It seems to reduce the toxicity of the infection, wherever the infectious process may be located. In one case described in detail, the sputum swarming with tubercle bacilli, remarkable improvement was realized under two series of seven injections by the vein, a total of 21 gm. of the hexamethylenamin. The young man had nephritis with 5 gm. albumin and ureosecretory constant of 0.24, besides the tuberculous left bronchopneumonia.

66. **Adiposis Dolorosa.**—In the case described the typical adiposis dolorosa developed in a girl of 16 whose menses had been suppressed for several months. The pains returned at monthly intervals and the clinical picture showed great improvement under ovarian treatment. After two years of suspension menstruation returned, and since then the paroxysms of pain have been much less pronounced. The pituitary region seems to be normal, as also the thyroid. In another case the young officer has small movable lipomas on the forearms, absolutely symmetrical. They developed at about 16, and there is nothing else pathologic to be discovered in the robust young man. The lumps are only slightly painful.

68. **Epilepsy, Hysteria and Chorea in Advanced Psychiatric Center.**—Damaye gives some examples of convulsions resembling epileptic seizures which developed after exceptional physical exertion, long day and night marching or manual labor. A very little alcohol, then, may be the last straw that brings on the convulsion. The effect of a wound or bombardment or getting gassed may also have this effect. Epileptics average as high in courage as others, other things being equal. They are not infrequently cited for gallantry. Some do heroic acts in a kind of impulsive manner like that in which they sometimes commit criminal actions. Some epileptics display symptoms resembling those of neurasthenia, and some who have been trephined present, in addition to all this, attacks of jacksonian epilepsy. In treatment, a quiet environment, sodium cacodylate and a milk-vegetable diet were the main reliance. In the great majority of the cases the epilepsy dated from early life but had been aggravated by campaign conditions.

69. **Serum Anaphylaxis.**—Fièvez has encountered in the last year fifteen cases of a mild anaphylactic reaction to a second injection of antitetanus serum or other serum. The intensely itching urticaria developed suddenly, twenty-four or thirty hours after the repeated injection, in some cases. In one case the interval was only ten minutes. Preventive injection of calcium chlorid and epinephrin did not seem to do any good. Although these reactions are not severe, yet their repetition might prove somewhat serious, and nowadays antitetanus serum is often injected several times as a man may receive several wounds in the course of time.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 5, 1918, **48**, No. 40

70 *Influenza Epidemic. E. Bircher.—p. 1338.
71 Biology of Lice. B. Galli-Valerio.—p. 1341.
72 Development of Bothriocephalus. C. Janicki.—p. 1343.

70. **Influenza.**—Bircher reiterates that his findings in the prevailing epidemic pointed to invasion of highly virulent streptococci, and there was not the slightest evidence to prove that the Pfeiffer bacillus was the cause of the disease. The weather was never so hot or the region so dry and dusty as this summer. Fatiguing work seemed to afford a predisposition, as also the lymphatic-asthenic constitution. About half the cases in his district developed pneumonia. He was impressed with the large proportion of children affected, but he knew of no case in an infant and no severe case in persons over 50. One robust person showed the first symptoms at 4 p. m. and died before 10 the next morning. The findings in the lungs were not those of ordinary pneumonia, but resembled more those of pneumonic plague, as German clinicians have also reported. The pneumonia mortality was 10 per cent., and severe empyema developed in some of the survivors. In one week he performed ten empyema operations. Some of the influenza patients lost up to 20 kg. in weight in one week. Complications were frequent, antistreptococcus serum proved ineffectual, but antipneumococcus serum benefited where pneumococci were found present. In some cases the influenza seemed to induce a positive Wassermann reaction. The disease was exceptionally fatal in the pregnant.

Gazzetta degli Ospedali e delle Cliniche, Milan

Aug. 1, 1918, 39, No. 61

73 Mixed Organic and Hysteric Crossed Hemiplegia after War Wound. A. Roccavilla.—p. 593.

Aug. 4, 1918, 39, No. 62

74 *Treatment of Primary Serofibrinous Pleurisy. V. Panto.—p. 604.

Aug. 8, 1918, 39, No. 63

75 *Peripheral Neuritis in Tuberculosis. C. Tarchetti.—p. 614.
76 Disturbances from Artificial Feeding of Infants. R. Costa.—p. 615.
77 Influenza. T. Di Giuseppe.—p. 616.

74. **Treatment of Pleurisy.**—Panto's routine practice in primary pleurisy with effusion is to aspirate from 80 to 100 c.c. of the effusion on alternate days, repeating three or four times, always at a different point; giving digitalis, sodium salicylate and theobromin according to the indications; painting the chest wall with iodin; a light milk and egg diet, and during convalescence, the hypodermic injection of an iodin and iodid solution (Durante's formula). The results have been highly satisfactory in the sixty cases he has treated by this method. The diuresis increased at once, the local relief in the chest was pronounced, and the fever rapidly subsided. The reaction to the mechanical irritation from the repeated puncture aids in the resorption of the effusion until all is gone by the tenth or fifteenth day. The recovery is more rapid the earlier the punctures can be applied.

75. **Peripheral Neuritis in Pulmonary Tuberculosis.**—Tarchetti has encountered ten cases of peripheral neuritis in men with pulmonary tuberculosis at a certain hospital, and he was able to trace it to a favorite prescription in vogue there containing aconite. The neuritis was evidently due to chronic aconite poisoning, as there have been no further cases of the neuritis during the six years since the aconite prescription was discarded. The prescription called for 0.008 gm. of the alkaloid in each hundred parts of the excipient.

Policlinico, Rome

Oct. 13, 1918, 25, No. 41

78 Tests of Functional Capacity of Heart. G. Galli.—p. 965.
79 Principles of Technic for Transfusion of Blood. G. Egidi.—p. 969.
80 Principles of Technic for Intravenous Injections. Massimi.—p. 970.

Oct. 20, 1918, 25, No. 42

81 The Prevailing Epidemic. F. Micheli and G. Satta.—p. 989.
82 Mastoiditis from Shell Concussion. G. Bilancioni.—p. 995.
83 Test for Picric Acid Jaundice. E. Pittarelli.—p. 999.
84 Primary Suture of War Wounds. Zapelloni.—p. 1002.

September, 1918, 25, Medical Section No. 9

85 *Malaria in Military Hospital at Milan. C. Pezzi and G. Polti.—p. 257.
86 Clinical Forms of Malaria. A. Borgherini.—p. 270. Cont'n.
87 Tremor in Malaria. P. Rusca.—p. 278.

September, 1918, 25, Surgical Section No. 9

88 Albee's Operation for Pott's Disease. D. Maragliano.—p. 257. To be continued.
89 Abdominal War Wounds. G. Egidi.—p. 274. Conc'n.

85. **Malaria.**—Pezzi and Polti urge the necessity for intensive measures during the coming months to cure every case of malaria, so that none will be left from which mosquitoes may get infected next spring and summer. The diagnosis is the first thing now, and every practitioner, they reiterate, should be on the alert to detect malaria.

Riforma Medica, Naples

July, 1918, 34, Rummo Memorial Number

90 A Gaetano Rummo. In memoria.—pp. 1-28.

Sept. 14, 1918, 34, No. 37

91 *Adequate Dietaries. E. Maragliano.—p. 726; S. Baglioni.—p. 726.
92 *Atropin as Test for Tachycardia. G. Galli.—p. 727.
93 *Arthrotomy for Purulent War Wound of Knee. G. de Francisco.—p. 729.
94 *Resection of Auriculo-Temporal Nerve for Parotid Fistula. R. Ianni.—p. 731.
95 Nosography of Wounds of Chest. E. Aievoli.—p. 735.

91. **Adequate Dietaries.**—Baglioni replies to Bottazzi's recent publications on this subject, and Maragliano comments on the depressing influence exerted by statements as to the indispensability of certain proportions of certain foods which war conditions, etc., have shut off more or less completely for the present.

92. **Atropin Test for Paroxysmal Tachycardia.**—In a case suspected of malingering, four minutes after a subcutaneous injection of 1 mg. of atropin the pulse dropped from 90 to 73, and the respiration grew slower. Then, the forty-third minute after the injection, suddenly the pulse ran up to 215 and the respiration rate became much increased. The tachycardia lasted for forty-seven minutes and then gradually subsided to 75 by the end of the hour. Even with internal administration of 20 drops of a 1 per thousand solution of atropin it is possible to elicit a typical attack of essential tachycardia in the predisposed, but the interval is over an hour when given by the mouth.

93. **Arthrotomy for Purulent Knee Process.**—De Francisco extols the advantages of a posterior-inner counter-opening in the popliteal space with wounds of the knees requiring drainage. The drainage is much more complete with this than with the usual median popliteal incision, while it is free from the dangers of the latter. He applies it to supplement ample lateral arthrotomy. The incision, about 6 cm. long, is made between the tendons of the rectus muscle and of the semitendinosus. The synovial capsule is incised on the internal tuberosity of the tibia and posterior margin of the internal condyle of the femur, the incision carried up to its superior insertion, guided by the finger or sound introduced into the joint through the inner anterior-lateral incision. At the same time, the bursa of the semimembranosus is incised. The joint is thoroughly rinsed out with boric acid solution and the recesses wiped out with sponges, rinsing then with ether and again with hydrogen peroxid.

94. **Resection of Auriculotemporal Nerve to Arrest Parotid Secretion.**—Ianni reviews what has been published in Europe on this subject, and gives illustrations showing the physiologic basis of the operation. He performed the operation on a soldier with a long war wound of the parotid region that had healed except for a fistula from which saliva poured constantly. The nerve was resected through an incision the same as for ligation of the superficial temporal artery, the nerve being found just below this artery. He isolated the nerve all the way down to the parotid gland and then pulled on it and cut the central end. He thus succeeded in isolating a tract 4.5 cm. long, with the small glandular secretory ramifications. The saliva still poured from the fistula for a few days, but by the seventh day the fistula had completely healed, and no saliva issued from the mouth of the duct of Steno. The cure has been complete during the nearly two years to date. None of the persons who have been operated on by this technic experience any inconvenience from the loss of the parotid secretion, the other glands furnishing abundance of saliva.

Anales del Instituto Modelo de Clinica Medica, Buenos Aires

January-June, 1918, 3, No. 1

96 Transfusion of Citrated Blood. (La méthode "Agote.") L. Agote.—p. 1.
97 Causes of Error in Wassermann Test. E. Lorentz.—p. 18.
98 *Nature of Acute Rheumatism. L. Agote.—p. 60.
99 Physics and Chemistry of Nervous System. H. Damianovich.—p. 66.
100 *Pathologic Anatomy of Rabies. I. L. Y. Apphatie.—p. 73.
101 *Hematology of Intestinal Amebiasis. R. F. Vaccarezza.—p. 108.
102 *Syphilitic Gastritis. R. Novaro.—p. 132.
103 Interpretation of Wassermann Reaction. E. Lorentz.—p. 145.
104 Changes in Blood of Animals under Influence of Diphtheria Toxin. H. Damianovich and J. Outes.—p. 155.
105 *The Syphilitic Eye. E. V. Merlo.—p. 158.
106 Some Notes on Pathologic Anatomy. L. Merzbacher.—p. 159.
107 Parenteral Injection of Milk to Promote Lactation. C. P. Matheu.—p. 168.
108 Nuclei in Vignal-Ranvier Cells. P. Rojas.—p. 171.
109 Regeneration of Nerves. L. Merzbacher.—p. 175.
110 Catalase in the Brain Tissue. M. Amato.—p. 189.

98. **Nature and Prophylaxis of Acute Articular Rheumatism.**—Agote comments on the close analogy between the primary chancre and recurring manifestations in syphilis, the mosquito bite and the recurring febrile attacks in malaria, on the one hand, and the primary infectious sore throat and the recurring attacks of acute polyarticular rheumatism. All

three share a primary lesion and a tendency to recurrence, and are all probably of parasitic origin. It has been his experience that the attacks of acute articular rheumatism occur in spring and fall, never in the extremely cold or the extremely hot months. He has noticed further that the recurrences develop at the same season as the first attack. He cites some cases in which the subjects could thus foretell exactly when a new attack was to be expected. Treatment and prophylaxis, therefore, should be on the same principles as for syphilis and malaria, prolonged and preventive medicinal treatment when recurrence is anticipated. He orders 1 or 2 gm. of sodium salicyate daily during the month before the anticipated recurrence. If the season is very backward, he makes allowance for this. In case of gastric intolerance, he gives 3 gm. in an enema on retiring. When the rheumatism shows a little let-up, he gives the salicylate for a fortnight or month, then suspends for the same length of time and repeats until the rheumatism is conquered. A number of cases are cited in which under this prophylactic treatment there has been no return of the previously annually recurring attacks of the febrile rheumatism every spring. One boy of 14 had had six spring attacks, but has not had the disease since this prophylaxis was inaugurated.

100. **Pathologic Anatomy of Rabies.**—Apphatie remarks that the filtrability of rabies virus seems to disprove any assumption as to the Negri bodies being the parasite of rabies. It is possible that the spores might pass through the filter—In any event, he declares, the time has come for revision of the problem of filtrable pathogenic viruses.

101. **The Blood with Amebiasis.**—Vaccarezza found the blood much concentrated in some of the twenty-five cases examined, as the result of loss of fluids. In thirteen, eosinophils formed less than 3 per cent.; in five, from 3 to 5 per cent.; in four, from 5 to 7, and in three, from 7 to 10.5 per cent. The differential count in each case is compared with the clinical course, etc.

102. **Syphilitic Gastritis.**—The husband of the woman of 44 was an old syphilitic and she had had six abortions besides seven still living children. For three months there had been pain in the epigastrium three or four hours after eating, with other signs of an infiltrating gastritis, but the stomach shadow was normal although not flexible. The blood picture was of the chlorosis type, and under intravenous injection of an arsphenamin preparation, recovery was soon prompt, complete and permanent.

105. **The Syphilitic Eye.**—Merlo during the last three years has found that the Wassermann reaction and the course of the case invariably confirmed his diagnosis of syphilis based on the aspect of the eye alone. One eyelid droops slightly, and this unilateral ptosis is accompanied by slight strabismus and a peculiar mixture of vagueness and sadness in the glance. He recognizes the syphilitic by this means, having found this "syphilis eye" common in the secondary and tertiary stages of the disease. The eye probably shows the effect of the involvement of the meninges.

Brasil Medico, Rio de Janeiro

May 18, 1918, **32**, No. 20

111 *Protection of Children of Tuberculous Parents. C. Ferreira.—p. 153.

Aug. 10, 1918, **32**, No. 32

112 Brazilian Gregarinas. G. Hasselmann.—p. 249.
113 Malarial Coma. H. Ribeiro.—p. 249.

Aug. 17, 1918, **32**, No. 33

114 The Murmur of Mitral Insufficiency. J. L. de Mesquita.—p. 257.

Aug. 24, 1918, **32**, No. 34

115 Isolation in Leprosy. F. Terra and J. Moreira.—p. 265.
116 Bacteriology of Dysentery at Rio. E. Gomes.—p. 267.

111. **Protection of Children of Tuberculous Parents.**—Ferreira is president of the Liga Paulista contra la Tuberculose, and he was the leading spirit in introducing into Brazil a movement similar to Grancher's plan in France. (This was described in THE JOURNAL, July 6, 1918, p. 1.) He describes the fine results realized by this "Obra de Preservacão" at S. Paulo. In 1914 it had fifty-five children in its charge, from 4 to 16 years old. In 1916 the number was fifty-eight, and two more advisory clinics and two more sanatoriums are planned.

Progresos de la Clinica, Madrid

August, 1918, **6**, No. 68

117 *Complications of Malta Fever. Camacho.—p. 69.
118 *Causal Factors in Cirrhosis of Liver. F. F. Martinez.—p. 76.
119 Serous Cysts of the Kidney; Two Cases. R. Molla.—p. 85.
120 Treatment of Erysipelas. A. Perera.—p. 90.
121 Treatment of Atonic Ulcers. A. Perera.—p. 91.
122 Present Status of Cancer Research. C. F. Arroyo.—p. 95.
123 Congenital Luxation of Knee. A. T. Pujol.—p. 104.
124 Sulphur Springs in Treatment of Syphilis. J. G. Viñals.—p. 123.
125 Lavage of the Stomach. J. L. Yagüe y Espinosa.—p. 126.

117. **Complications of Malta Fever.**—Camacho remarks that Malta fever is endemic in his district (Granada) and causes more morbidity than any other disease. It frequently masquerades as pulmonary tuberculosis, typhoid fever, chronic rheumatism or meningitis, or it may be responsible for inflammatory and suppurating processes in joints and long bones. He describes six cases of this kind in children and adults. Inflammation in the synovialis and around joints is so common that it must be regarded as a symptom rather than a complication. The most frequent localization is in the sacroiliac articulation, next, the hip and shoulder. The effusion in the joint is a pure culture of the melitococcus, and when suppuration follows it seems to act like a fixation abscess, diverting the septicemia and generating antibodies to such an extent that prompt recovery ensues.

118. **Factors of Cirrhosis of the Liver.**—Martinez reviews the various factors that have been suggested by others, and then analyzes in detail fifty-four cases from his own practice. Alcohol was unmistakably to be incriminated in 59.25 per cent. In the other cases alcohol could not have been a factor, but infectious diseases, malaria, syphilis, etc., tobacco, lead poisoning or thyroidism evidently had a share in the morbidity of the liver.

Semana Medica, Buenos Aires

July 4, 1918, **25**, No. 27

126 *History of Influenza. A. Marco Del Pont.—p. 1.
127 Roentgen Findings After Intramuscular Injection of Iodin Preparations. J. F. M. Gomez.—p. 10.
128 Campaign Against Tuberculosis. E. R. Coni.—p. 14.
129 *Register of Criminals. V. Delfino.—p. 15.

July 11, 1918, **25**, No. 28

130 *Complications of an Otitis. M. J. Rizzi.—p. 33.
131 Movement of Eyelid, Associated with Mastication. C. S. Damel and A. Natale.—p. 41.
132 Vaccination Against Typhoid in Argentina. J. A. Lopez.—p. 45.
133 History and Comparison of Pubiotomy and Symphysiotomy. T. Chamorro.—p. 50.
134 The Campaign Against Venereal Disease. A. M. Gimenez.—p. 56.

126. **History of Epidemics of Influenza.**—Del Pont is professor of epidemiology at Buenos Aires, and his historical review of 125 pandemics of influenza shows that 50 occurred in the winter, 35 in the spring, 16 in the summer and 24 in the fall. The first reliably recorded epidemic was in 1173, while authentic accounts of plague are on record from 2,000 years before our era. Among the odd facts he relates is the history of a ship in 1781 on which influenza developed in mid-ocean—no cases having been known in the port from which it sailed. Every person on the ship was stricken, and when it arrived at Canton the disease was found epidemic there, the first cases having developed at about the same date in Canton and on the ship in mid-ocean.

129. **National Register of Criminals.**—Delfino urges a national central headquarters where the data for identification of each criminal can be kept filed for ready reference, and where the outcome of each criminal court trial is duly and promptly filed. The courts of the country thus can obtain the complete summary of the criminal's career to date, and thus be enabled to pass judgment with true justice in each case, discriminating between the occasional and the habitual criminal. The scheme proposed provides for quick action on each demand for data, the records to be accessible only to the duly qualified authorities.

130. **Complications of an Otitis.**—Rizzi's patient was a man of 34 with postinfluenzal right otitis media from which devel-

oped thrombophlebitis with suppuration and septicemia, with an abscess in the cerebellum. The man was finally completely cured after a two years' course of treatment including four extensive operations and twenty-six punctures of the brain.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Aug. 10, 1918, **2**, No. 6

135 Sunlight in Treatment of Tuberculosis. P. B. Middendorp.—p. 427.
136 Influenza in Garrison. W. F. Enklaar and S. van der Veen.—p. 442.
137 Influenza. J. M. Wiggelendam.—p. 445; J. W. Napjus and J. Hontman.—p. 448.
138 *Tumors of Spinal Dura Mater. G. C. Bolten.—p. 450.

Aug. 31, 1918, **2**, No. 9

139 *Radiotherapy of Uterine Cancer. G. F. Gaarenstroom.—p. 727.
140 *Radiotherapy of Superficial Cancer. J. H. Kuijjer.—p. 734.
141 *Exploratory Puncture of Cancer. H. T. Deelman.—p. 744.
142 Influenza. D. N. van Gelderen.—p. 749.
143 Case of Missed Labor. L. F. Driessen.—p. 750.

138. **Cancer in Spinal Dura Mater.**—Bolten refers to primary tumors, and reports eight cases. Paresthesias and neuralgia are usually the first symptoms, but sometimes the first signs of trouble are from interruption of spinal cord functioning. In the early stages, roentgen examination is negative except when the tumor is a calcified fibroma. In only one of his eight cases was the roentgen outline distinct. At the same time, roentgen examination is very important as positive findings are so significant. Laminectomy is not particularly dangerous, and three of his patients recovered. The operation was done under local anesthesia in some of the cases. That his results were not constantly favorable was due to intercurrent pneumonia or to the general debility. These eight operative, plus two cases in which no operation was attempted, were all encountered in one year recently. One of the two patients who refused operative treatment was a man of 48 and surprising improvement followed roentgen exposures, both the violent neuralgia and the motor disturbances subsiding completely, with no return during the six months of apparently perfect health to date. Judging by other experiences, a metastatic tumor in the dura must be regarded as hopeless; they are comparatively common with ovarian and prostate tumors. Complete interruption of spinal cord functioning seldom retrogresses, even after removal of the tumor, although the pains may have disappeared.

139. **Radiotherapy of Uterine Cancer.**—Gaarenstroom's experience with 67 cases of uterine cancer, all inoperable but 4, has confirmed the value of the combination of radium and roentgen treatment. Not that there is any essential difference between the effect of the rays on the cancer, he says, but because the anatomic and physical conditions enable one to supplement the other more effectually. His technic includes curetting, radium, 100 mg. for twenty-four hours, then roentgen exposures, vaginal, sacral and abdominal, concluding with a repetition of the radium dose, and all within four weeks, not allowing the cancer cells a chance to recuperate. Of the 58 inoperable and otherwise doomed patients, 11 have been free from appreciable manifestations of their malignant disease during the months since, from fifteen to twenty-six months in six. Great improvement was realized in 7 other cases, and 3 were improved. In only 3 of the total 58 cases was there no benefit.

140. **Radiotherapy of Superficial Cancer.**—Kuijjer reports from the same institution the experiences with superficial cancer in 63 cases. The details are tabulated for comparison, and some especially instructive cases are described in full. All were cured or improved, 24 of the 26 smaller cancers being listed as quite cured, as also 11 of the 17 large ones, 5 of the 10 very extensive ones, and 4 of the 8 lupus cancers. There has been recurrence in only 4 cases, and these were in the two first mentioned groups.

141. **Exploratory Puncture of Malignant Tumors.**—Deelman expatiates on the superior advantages of puncture over excision for differentiation of tumors. A fine needle is worked into the tumor and, as the piston is drawn up, scraping movements are made with the tip of the needle. The syringe then contains a little bloody fluid with minute scraps of tissue. It is remarkable how clear the histologic findings often are in scraps no bigger than the point of a pin. He treats them with formaldehyd, followed by acetone. This puncture can be done in the office or in the bed, and he has never had any mishaps with it or by-effects in the twelve cases in which he has applied it to date, while the findings were extremely instructive, as he shows in a plate from some of the cases.

Hospitalstidende, Copenhagen

May 15, 1918, **61**, No. 20

144 *Action of Pathologic Serum on Photochemical Processes. H. Haxthausen.—p. 609. Commenced in No. 19.—p. 578.

144. **Dermatitis from Exposure to Light.**—Haxthausen remarks that hematoporphyrin, some element in maize, and a certain kind of buckwheat are the only substances that to date have been directly incriminated in the production of certain skin affections traced to the action of sunlight, hydroa vacciniforme, etc. But there is evidence to prove that many substances under certain circumstances may have a sensitizing action on the skin. He has been studying the blood serum of patients with solar eczema or Hutchinson's prurigo restricted to the exposed portions, face, hands and forearms. The most easily studied photochemical process in the blood is the hemolysis by light, and his tests showed a much higher hemolysis index in the serum of persons with this polymorphous light dermatitis than in normal serum or in serum from other forms of dermatitis. The difference is most marked the stronger the concentration.

Hygiea, Stockholm

Sept. 30, 1918, **80**, No. 18

145 *Obstetrical Paralysis. E. Rodhe.—p. 1041.

145. **Obstetric Neuritis.**—In two of the three cases reported of traumatic puerperal neuritis and paralysis, forceps had been used. In the other case delivery proceeded spontaneously, but was long protracted. The symptoms of neuritis developed immediately after delivery in one, during the first stage of labor in one, and during the last half of the pregnancy in the third woman. The pains and paralysis in the legs subsided in the course of six weeks, three and six months. The literature on neuritis after parturition is reviewed, and the etiology discussed.

Norsk Magasin for Lægevidenskaben, Christiania

October, 1918, **79**, No. 10

146 *Atypical Cases of Acute Leukemia. L. Dedichen.—p. 1105.
147 Cystic Ureteritis. F. Harbitz.—p. 1126.
148 Weight and Length of New Born Infants in Norway. C. L. Nielsen.—p. 1134.
149 Case of Paralysis of Brachial Plexus. S. F. Holst.—p. 1146.
150 Angina Pectoris. K. Motzfeldt.—p. 1158.

146. **Atypical Leukemia.**—Dedichen reviews the literature on atypical cases of leukemia and reports two cases which ran their course like an infectious disease with pronounced hemorrhagic tendency and gangrenous processes but no swelling of glands, although necropsy showed microscopic leukemic changes in them. There was leukopeny with lymphocytosis and severe anemia of the pernicious type. The girl of 12 and man of 35 died in less than three weeks and seven weeks after the first symptoms. Bacteria could not be cultivated from the blood during life, but streptococci and other species were found in the spleen. The third patient was a boy of 10, afebrile, no hemorrhagic tendency nor swelling of peripheral glands, but the spleen and liver were enlarged, and a lympho-sarcoma in the place of the thymus and the Mikulicz syndrome were accompanied by anemia and the blood findings of acute lymphatic leukemia. No bacteria could be cultivated from this case.

Svenska Läkaresällskapets Handlingar, Stockholm

Sept. 30, 1918, **44**, No. 3

151 *Fetal Vascular Layer of the Lens. J. W. Nordenson.—p. 407.
152 The Physiology of Swimming. G. Liljestrand and N. Stenström.—p. 441.
153 *Behavior of Heart During Swimming. G. Liljestrand and J. Lindhard.—p. 495.

151. **Structure and Retrogression of the Vascular Coat of the Lens.**—The research reported was done on cattle fetuses.

153. **Swimming.**—The respiratory interchanges were studied on nine healthy persons during swimming exercises and compared with the findings in a similar group at rest. The blood pressure, the resistance offered by the water to the expansion of the chest, and other elements of swimming are discussed. The volume per minute and the blood pressure both increase during swimming exercises, so that the work of the heart is exaggerated more than with other forms of exercise as a rule.

Ugeskrift for Læger, Copenhagen

Sept. 19, 1918, **80**, No. 38

154 *Influenza Epidemic. V. Bie and others.—p. 1501; V. Scheel. —p. 1510.

153 *Meningococcus Carriers. T. V. Hyge.—p. 1514.

Sept. 26, 1918, **80**, No. 39

156 *Hysteric Spasm of the Esophagus. S. Monrad.—p. 1539.

157 Hair Ball Removed from Stomach of Girl under 4. S. Monrad. —p. 1546.

158 *Experiences with the Wassermann Test. Ehlers and Aaskow. —p. 1550.

Oct. 10, 1918, **80**, No. 41

159 *Death Following Directly on Roentgen Treatment of Exophthalmic Goiter. K. Secher.—p. 1613.

154. **Influenza.**—The experiences related from Copenhagen indicate that at the same time as the epidemic of influenza—and probably a consequence of this, by the predisposition induced—a pneumococcus epidemic developed which far outshadowed the other in gravity. Sputum collected from the influenza patients immediately on entrance into any of the hospitals showed invariably numerous pneumococci, alone or predominant, whether the patient developed pneumonia later or not. Pfeiffer bacilli were not found. Similar experiences are cited from Germany. Pfeiffer himself was unable to find the influenza bacillus in a number of cases, as also Gottschlich, Schürmann and Uhlenhuth, while Kolle, Friedmann, Mandelbaum and Gruber did not find it at all. In conclusion Curschmann's report is mentioned, dated 1908, of an epidemic of "influenza" prevailing at that time in Leipzig for which the pneumococcus seemed to be exclusively responsible.

Bie and his co-workers are not positively certain that the small, distinct, regularly circumscribed colonies of diplococci were actually the *Diplococcus lanceolatus* of Fränkel. They were found constantly, gram positive, lanceolate, usually encapsulated, even when they occurred in chains. In twenty-eight cases these diplococci were cultivated pure from the sputum or droplets coughed on agar plates as soon as the patients entered the hospital, and pneumococcus septicemia developed in twenty-two of twenty-three mice injected with the sputum. The diplococci developed always either in pure cultures or as the predominating bacteria. The gross bacteriologic properties of this diplococcus and of the pneumococcus are identical, they say, but it is possible that the two may not be identical but of a closely allied species. This is suggested by the lytic drop in the temperature, which was frequently observed, as also by the occurrence of the diplococci in chains. All the links in the chains, however, were always capsule-bearing diplococci.

Scheel, in discussing what he calls the *morbus ibericus*, relates that in Norway there was quite a conflict between the physicians and pharmacists, on one hand, and the government on the other. The government had prohibited the dispensing of alcohol and strong wines, even on a physician's prescription. But the pharmacists refused to submit to this prohibition, and the government had to rescind it. Scheel adds that it is certainly doubtful whether alcohol acts as a preventive, as some believe, and owing to the prolonged course of the epidemic its use for this purpose is not to be recommended.

155. **Meningococcus Carriers.**—Hyge cites Chievitz' report that 6.8 per cent. carriers were found among 1,175 persons in the environment of meningitis patients, and 7.8 per cent. of 1,790 not known to have been in contact with cases. Only one carrier was found in 400 children; 3 among 240 civilians in a Copenhagen policlinic, and 18 per cent. among 240 soldiers in the hospital for other than respiratory affections. Thomsen and Wulff's recent compilation showed 2.1 per cent. in 474 new recruits. The meningococci may be found three or four weeks after they have apparently disappeared from the nasopharynx, but they usually vanish in about three weeks, although cases are on record of persistence for months, up to eighteen months in Kutscher's case (1912). Hyge doubts whether gargling or nose douches are effectual, advocating rather occupation out of doors and keeping away from other people as much as possible, especially during the hours of sleeping and eating, with special care as to sneezing, coughing, etc.

156. **Hysteric Spasm of Esophagus.**—The 5-year-old girl presented a grave clinical picture exactly like that with stenosis from corrosion by a caustic. Monrad commenced dilatation with a fine catheter and found that the esophagus was completely permeable. The child had actually drunk some caustic, but the first symptoms of stenosis did not appear until three months later after she had heard of a relative who had developed stenosis from such a cause. In a boy of 5 the conditions seemed to indicate a congenital diverticulum in the esophagus, but in this case also the esophagus proved to be normal on roentgenoscopy and under chloroform, although every attempt to introduce a catheter met with impassible resistance at the lower third. In this case the spasm in the esophagus had been noticed during the first year of life, the spasm occurred at different levels of the esophagus at different times, and the esophagus returned to apparently normal size and shape afterward, with no tendency to dilatation. In a third case a girl of 6 had had typical hysterical anorexia for several years, and Monrad was not surprised when the child developed the clinical picture of a diverticulum of the esophagus. A surgeon consulted counseled gastrostomy to strengthen the child for an operation on the esophagus, but Monrad found that the spasm subsided abruptly under introduction of a No. 31 catheter, after the smaller series had been constantly arrested at a point 25 cm. from the teeth. The child was apparently completely cured of all disturbances and ate with good appetite for weeks, but was brought back to the hospital a month after her dismissal presenting the same clinical picture of stenosis as before. Again it yielded to catheter treatment. In the second of the three cases, the threat of catheter treatment sufficed to arrest the spasm on several occasions.

158. **Experiences with the Wassermann Test.**—Ehlers states that in a recent series of 1,091 patients in his service at the Kommunehospital, 371 were syphilitics. In ten cases the routine Wassermann test was the only thing that gave the clue to the syphilis, confirmed by the course of the cases. He does not accept as sole testimony of syphilis a single positive response with negative responses afterward.

159. **Death Following Roentgen Treatment of Exophthalmic Goiter.**—Secher reiterates that the enlarged thyroid gland responds to roentgen treatment in very different ways in different cases. In several cases cited, an ordinary goiter seemed to become transformed into the exophthalmic type under roentgen treatment. Belot and Simon, among others, have declared that a correctly given course of roentgen treatment is free from danger, but Secher insists that this is not true. The thyroid may be whipped up to function to excess, or it may become functionally insufficient. A tendency to myxedema, however, is rare, but numerous cases of aggravation of hyperthyroidism have been reported, even with the most modern improved technic. Rieder and Verning have reported each one or two cases in which the aggravation was so intense that the patient died, and Secher now adds another case to this list of fatalities. His patient was an unmarried woman of 40, previously healthy until exophthalmic goiter developed. The thyroid was given roentgen treatment after a year, eight exposures, each ½ Sabouraud-Noiré unit, distributed in four fields, three on the thyroid and one on the thymus. Her symptoms became much aggravated at once, with restlessness, choreiform movements, pulse 100 to 200, and heart beat up to 240, respiration 72, and death the fifth day. The thyroid showed very slight changes and the thymus nothing abnormal.